A Concise Psychological Dictionary

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A Concise Psychological Dictionary

Edited by *A. V. Petrovsky*
and *M. G. Yaroshevsky*

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Translated from the Russian
Edited by *Pyotr Shikhirev*, Cand. Sc. (Phil.)
Designed by *Yuri Davydov*

КРАТКИЙ ПСИХОЛОГИЧЕСКИЙ СЛОВАРЬ

под ред. А.В.Петровского и
М.Г. Ярошевского

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Publisher's Note

This dictionary is intended for a wide range of readers seeking information on concepts used in modern psychologgy. The entries embrace the main branches of psychology, theoretical trends and concepts, methods of psychological research, and major aspects of the history of psychology.

Because of its concise form, many special notions from engineering and medical psychology, pathopsychology, psychophysics, and other branches of psychological knowledge are not included in the dictionary, while others may be found in more general entries. Italicised cross-references will help the reader to find relevant entries with fuller information on the subject of interest.

The dictionary does not include terms which, though used in psychological literature, actually belong to other branches of knowledge, such as philosophy, pedagogy, anatomy, and physiology. This information may be found in special encyclopaedias and dictionaries.

When cited in the body of an entry, its title is abbreviated to the first letter (or letters), A's standing for the plural and A.'s, for the possessive case.

A

Abilities, individual psychological features of the personality, a premise for successful accomplishment of specific productive *activity*. A. became the subject of specialised psychological studies in the 19th century, when the works of Francis Galton initiated experimental and statistical studies of personal distinctions. Other conditions being equal, A. manifest themselves in how quickly, easily and efficiently the individual masters methods needed to organise and perform some kind of activity. A. are closely associated with the general *orientation* of the *personality*, with stability of human propensities for a given form of activity. Different A. may underlie identical accomplishments in some activity; at the same time, the same A. may underlie success in different types of activity. An important factor in the course of training and education is that of sensitive periods which help develop certain A. (see *Developmental Sensitiveness*). A. presumably form on the basis of *inclinations*. A qualitative analysis of A. is designed to reveal individual human characteristics needed to accomplish specific type of activity. Quantitative changes in A. characterise their development level, which is generally estimated by tests (see *Achievement Tests*; *Intelligence Tests*; and *Creativity Tests*). A study of specific psychological characteristics of various A. makes it possible to distinguish the individual's general qualities that meet the requirements of not one, but several forms of activity (see *Intellect*), and the special qualities that meet a restricted range of requirements in that particular form of activity (see *Abilities, Specific*). The degree of development of A. is expressed in *talent* and *geniality*. In Soviet psychology, the problem of A. is treated in the works of Boris Teplov, Natan Leites, Vadim Krutetsky, and others. All-round development of man's A. is in line with the principle of socialist society: "From each according to his ability, to each according to his work."

Abilities, Specific, individual psychological features allowing to successfully perform some specific activity (musical, scenic, literary, etc.). A.,S. develop on the basis of suitable *inclinations*, such as good musical ear and memory. Today, we know of specific sensitive periods (see *Developmental Sensitiveness*), during which A.,S. develop particularly well. For instance, A.,S. for music involve children under five, who actively develop good musical ear and memory. Given that inclinations are many-sided, A.,S. can form on various physiological bases. Thus, a certain level of A.,S. (mathematical, artistic, etc.) could be developed in virtually all healthy children. Thus, there is every reason to believe that all-round development of talents in children can be achieved through specially organised training.

Abstraction, a basic type of *thinking* whereby the subject mentally differentiates some qualities or aspects of an object and isolates them from other

qualities or aspects. The result is an intellectual construct (concept, model, theory, classification, etc.) also denoted by the term "A". Originally, A. is seen in a direct sensory reflection of the environment, when some properties of the latter provide orientation for *perception* and *action* while others are ignored. A. is a requisite condition for *categorisation*. By A. generalised images of reality are formed, allowing to select relations and connections essential to activity by isolating them from other relations and connections. When essential properties of reality are ignored, A. assumes a superficial and shallow character. In this case, the term is used to refer to conceptualisation and reasoning which have no basis in reality. A. true to reality is that simplification of the multitude of phenomena which increases the capacity of thought by virtue of its concentration on that which is essential for a given cognitive situation. Practice is the criterion for determining to what extent A. is genuine and productive.

Abulia, a pathological disturbance of the mental regulation of *actions*. It is seen in the absence of an impulse to act, inability to make or act on decisions, although the person is aware of this necessity. A. should be distinguished from lack of willpower as a *character* trait resulting from improper upbringing and corrigible by adequate training (see *Will*).

Acalculia, inability to calculate and perform arithmetical operations as a result of cortical lesions. Various groups of A. are recognised: primary A., associated with disturbance of spatial organisation of numbers and impaired ability to calculate; and secondary A., seen in other disorders of mental functions (*aphasia*, *agnosia*, *amnesia*) or in general impairment of purposeful intellectual activity.

Acceleration, an increase in the rate of the somatic and physiological maturation of children and teenagers, observed over the past 100-150 years. A. shows itself primarily in an increase in the bodily size and weight and in earlier onset of puberty. Data show that during this century the average size of infants has increased by 0.5-1.0 cm and the weight, by 100-300 g; the body size and weight of 5-7-year-olds has been increasing by an average of 1.5 cm and 0.5 kg every ten years; and the body size of schoolchildren has increased by 10-15 cm over the period. Puberty sets in one to two years earlier. This condition, given traditional modes of pre-adolescent upbringing and standards of *behaviour*, can sometimes give rise to mental collisions, such as semantic *barriers*, *conflicts*, and affective behaviour. There are data related to the accelerated mental development of children (psychological acceleration); however, there is not enough statistical data to draw a reliable conclusion.

Accentuation of Character, exaggeration of certain personality traits manifesting itself in selective vulnerability of personality in relation to certain types of psychogenic stress (profound

distress, excessive mental pressure, etc.) while the person can maintain emotional equilibrium under other types of mental stress. Although pure types are scarse, and mixed types predominate, the following types of A. of C. are distinguished: (1) cycloid—variations of mood resulting from an external situation; (2) asthenic—worry, indecisiveness, fatigue, irritability, inclination towards *depressions*; (3) sensitive—shyness, sensitivity, tendency to feel inferior; (4) schizoid—aloofness, reticence, loss of ability to maintain personal contacts (see *Extroversion—Introversion*), inability to sympathise (see *Emphathy*); (5) paranoiac—excessive irritability, persistence of negative *affects*, hypersensitivity, suspiciousness, exaggerated sense of self-importance; (6) epileptic—uncontrolled and impulsive behaviour, intolerance, mental rigidity, fighting and quarreling, inordinately detailed speech, adherence to standards; (7) histrionic (hysterical)—pronounced tendency towards repression of unpleasant facts or events, lying, fantasy and affected behaviour aimed at drawing attention, disregard for the feeling of other persons, tendency towards recklessness, vanity, "escape into disease" when the need for recognition is not satisfied; (8) hyperthymic—constantly high spirits, craving for action combined with mood shifts and a tendency to abandon pursuits in mid-course, excessive loquacity (galloping thought); (9) dysthymic—excessive gravity, high sense of responsibility, concentration on gloomy and sad aspects of life, susceptibility to depressions, inadequate activeness; (10) unstable (extravert)—tendency to be influenced by external things, a continuous search for fresh impressions or new company, ability to establish quick contact (although of a superficial character); (11) conforming—exaggerated submissiveness and dependability. Depending on the degree of manifestation, overt and covert types of A. of C. are recognised. Becoming more pronounced towards teenage, A. of C. abates towards adulthood, manifesting itself not in any situation (as in psychopathy) but only in a complex psychogenic situations, those bringing pressure to bear on the "weak link". A. of C. promotes the development of acute affective reactions (see *Psychogenic Disorders*), *neuroses*, pathological behaviour disorders. A. of C. must be taken into account in effectuating an individual approach to raising children and teenagers, as well as in choosing adequate forms of individual and family psychotherapies. The above classification was suggested by Karl Leonghard and Andrei Lichko.

Acceptor of Action Result, a mental mechanism of anticipation and evaluation of the result of *action* in functional systems. The term was introduced by Pyotr Anokhin in 1955. In the information aspect, A. of A.R. is "the informational equivalent of the result" retrieved from *memory* in the process of *decision-making* which determines the organisation of the organism's motor activity during the behavioural act and carries out the comparison of the result with its "anticipated reflection". If they coincide, the completed func-

tional scheme falls apart, and the organism can proceed to another purposeful *behaviour*; if they overlap, improvements are introduced in the programme of action; if they are totally different, exploratory-orienting behaviour is developed.

Achievement Motivation, the *subject's need* to reach success in various types of *activity*, especially in competition with other people. Studies of A.M. were begun by a group of American researchers headed by David McClelland. They proposed the theory and methodology of measuring A.M. which were further elaborated in the works of John Atkinson and Heinz Heckhausen. A special projective method was worked out for the qualitative estimation and study of A.M. (see *Projective Tests*). According to McClelland and others, A.M. is formed during the child's upbringing in the family, under the influence of his parents, firstly of his mother. The basis of A.M. is made up of the affectively coloured *associations* which link the child's *emotional experience* with the forms of his *behaviour*. If in early childhood the child is praised by the parents for his successes and punished for failures, by the age of 5 to 6 he forms A.M. which later becomes a steady need and is manifested in various types of activity. McClelland attempted to explain, proceeding from A.M., the specific traits in the socio-economic development of various nations, which is counter to the historical approach. Soviet psychology rejects the idea of A.M. being formed exclusively during early childhood.

Achievement Tests, a technique of *psychodiagnosis* revealing the extent to which subjects have mastered specific knowledge, abilities, and skills. A.T. resemble special abilities tests (see *Creativity Tests*). Unlike the latter, however, they reveal what the subject has already mastered, rather than generalised skills devoid of concrete content and resulting from variegated life experience. There are three types of A.T., namely, action tests, written tests, and oral tests. Action tests are designed to reveal an ability to perform actions with mechanisms, materials, and implements. Written A.T. are performed on special questionnaires. The subjects are told to either select the correct oral answer among several options, or to mark in a diagram the reflection of the situation described in a given question, or to find in a drawing the situation or detail providing a cue to the correct solution. Oral A.T. are a system of prepared questions which the subjects must answer; in this case, the experimenter must foresee the difficulties that may arise because of inexperience in articulating replies. A.T. are used in general and vocational training.

Action, a unit of *activity*; a voluntary intentional mediated activity directed towards reaching a realised *goal*. A. as a specific unit of human activity was introduced in Soviet *psychology* by Sergei Rubinstein and Alexei N. Leontyev. The notion of A. as unit of analysis and object of study is used in the study of *perceptual*, motor, mnemonic, mental, creative, and other *A's*. As regards its structure, A., unlike the

habitual or impulsive behavioural acts (which are directly determined by the objective situation) is always mediated. By using various means, such as *signs*, *roles*, *values*, *norms*, etc. the *subject* masters an A., acquiring it as his own "personal" A. Every A. consists of orienting, effector and control parts. As regards their functioning, A's can be grouped as voluntary and intentional. In *ontogenesis* the function of voluntary control and regulation of A. is effected at first in the process of the *joint activities* of the adult and the child, and, later, as a result of the *interiorisation* of social norms (patterns) and schemes of A., the child begins to control his A. in accordance with these patterns and schemes. The intentionality of A. is explained by the fact that the subject decides that the *image* of the future result of his A. corresponds to the *motive* of his activity; in this case this image of action acquires a *personalised meaning* and becomes the subject's goal. The subject's *intention* gives rise to a goal-related *attitude*, a readiness to attain the anticipated result of A. The goal-related attitude is connected with the image of the anticipated result, which does not imply concrete ways and means by which the goal could be reached most likely and effectively. This image only charts the general direction for forming A., while the executive part of A. is determined by the concrete conditions of the given *situation*. In the process of carrying out an A., the subject comes into contact with the objective world and transforms (outwardly or mentally) the objective situation and attains a result. The subject evaluates its personalised meaning via his *emotions*. In the process of A. new goals may appear (see *Goal Formation*) and the place of A. in the activity may change. According to Leontyev, an A. can become an *operation*, if a repeatedly attained goal, which is firmly connected with the means of reaching it, is no longer realised as a result of it becoming automatic and becomes, within the structure of activity, a condition for performing another A. (shift of the goal towards the condition). Beginning to perform an A. as a result of a certain motive, the subject can later perform an A. for the purpose of the A. itself (shift of the motive towards the goal), in which case the A. becomes an independent activity. The mechanism of the formation of realised "motive-goals" is one of the mechanisms of the formation of new types of human activity in ontogenesis. On the dynamic plane the stability of an A. is determined by its goal orientation. The psychophysiological organisation of an A. is provided by such a functional block of the *brain* as the block of programming, regulation and control, of which the frontal lobes are the most important part (Alexander Luria).

Activation, a state of the nervous system characterising the level of its excitation and reactivity. A. of the nervous system as a whole, as its general characteristic, should be distinguished from A. of any one brain structure. The optimal level of A. would be the utmost degree of cor-

respondence between the state of the nervous system and a behavioural act: the individual level of A. is the stage of A., peculiar to each individual, at which he tends to effectuate his activity.

Activeness, the universal characteristic of living beings, their intrinsic dynamics as a source of transforming or maintaining vital relationships with the surrounding world; *ability* for autonomous action. In psychology, A. is correlated with *activity*, manifesting itself as a dynamic condition for the latter's origination, effectuation, and transformation, and as a property of its movement. A. is characterised by a high degree of mediation of any *action* by the specific inner state of the *subject* at the very moment of the action, as distinct from reactivity (when actions are mediated by the antecedent situation); by autonomy, i.e. mediation by the subject's *goal*, as distinct from field-dependent behaviour (see *Field Independence*); by cross-situational features, i.e. the surpassing of the initial goals as distinct from adaptability as limitation of the subject's actions by the narrow framework of the present goals (see *Activeness, Situationally Independent*); by a considerable degree of stability vis-à-vis the adopted goal, as distinct from passive adaptability to the objects to be encountered by the subject in the course of activity.

Activeness, Orienting, *behaviour* aimed at changing a *situation* (or one's attitude towards it) with an absence of a definite prognosis of the results but with a continuous account taken of the degree of the behaviour's effectiveness. A.,O. is an essential component of many types of behaviour. In animals, it embraces all types of active-defensive behaviour (aggression, complex forms of danger avoidance), self-stimulation, orientating behaviour (see *Group Behaviour of Animals*). In men, A.,O. is a major component in the processes of planning, fantasy, etc.

Activeness of Personality, man's capacity for producing socially relevant transformations in the world relying on the appropriation of the wealth of material and spiritual culture; manifests itself in *creative activity*, acts of volition, *communication* (1). The integral characteristic of A. of P. is adoption of an active stance displayed in the person's principled ideological position, consistent stand in defending personal viewpoints, maintenance of a unity of word and deed (see *Activeness*; *Activeness, Situationally Independent*; *Deed*; *Activity*; *Personality*).

Activeness, Situationally Independent, a *subject*'s capacity to remain independent of a given situation, set *goals* excessive from the point of view of the initial *task* (Vadim Petrovsky). By way of A.,S.D. the subject overcomes external and internal limitations ("barriers") to *activity* (see *Attitude*). A.,S.D. is manifested in *creative activity*, cognitive (intellectual) activeness, "unselfish" *risk*, supernormative activeness (see *Efficiency of a Group*).

Activity, a dynamic system of the *subject*'s interaction with the surrounding world in the process of which the psychological *image* emerges and is effectuated in the object, and the subject's relationships in objective reality mediated by it are realised. The category of A. is a distinctive feature of Soviet psychology based on the Marxist-Leninist *methodology*. There are two characteristic points in Soviet psychology: (a) the proposition of the unity of *psyche* and A. which counterposes Soviet psychology to various types of the psychology of consciousness which analysed psyche apart from *behaviour* (see *Introspective Psychology*; *Gestalt Psychology*), and also to various naturalistic trends in behavioural psychology, analysing behaviour apart from psyche (see *Behaviourism*; *Neobehaviourism*); (b) the introduction of the principles of development and historicism whose realisation in research necessarily calls for an approach to A. as to the driving force of the development of psychological *reflection*. The category of A. is used to explain the mind's functioning in the study of various fields of psychic reality (psychology of cognitive processes, *motivation*, *will*, *emotions*, *personality*, intragroup processes) and in establishing various psychological fields (*general*, *social*, *developmental*, *pedagogical*, *medical*, *engineering*, *work*, and *animal psychology*). The usage of the A. category as an explanatory principle led to a change in the principles of analysing psyche in general psychology (the principle of unity of consciousness and A., the principle of unity of the external and internal structures of A., the *interiorisation-exteriorisation* principle as a mechanism of acquiring socio-historical experience; the principle of the dependence of psychological reflection on the position of the reflected object in the structure of A., etc.), and to the elaboration of the provisions on the systematic formation of mental actions, on the leading activity as the basis for structuring the development of psyche into stages, on the microstructural analysis of cognitive and executive A., on the mediation of interpersonal relationships, etc. Object relation and subjectivity are the basic characteristics of A. The specific nature of A.'s object-related determination lies in the fact that the objects of the surrounding world influence the subject indirectly, being transformed in the process of A., owing to which they are reflected in consciousness with a greater adequacy. The phylogenic preconditions of A.'s object relation are revealed in the animal activity being conditioned by the nature of objects and the *cues* which emerged during the species' evolution and served to satisfy the given biological *needs*, and not by any influence of the surrounding world. Only man's A. is explicitly object-related. This is manifested in man's A. being socially conditioned, in its link with *meanings* fixated in tools and schemes of action, in the concepts of language, social *roles*, *values*, and social norms. The subjectivity of A. is expressed in the following aspects of the subject's *activeness*: in the

dependence of the psychological image on past experience, *needs*, *attitudes*, emotions, *goals* and *motives* determining the orientation and the selective nature of A.; in the *personalised meaning*, the motive ("meaningful for me") to various events, actions and *deeds*. The analysis of A. may be divided into three planes: genetic, structurally functional and dynamic. On the genetic plane, social *joint activities* are the initial form of all human A., while interiorisation, which provides for the acquisition of socio-historical experience through the transformation of joint social activities into individual A., serves as a pattern of the human psychic development. In the process of interiorisation the transition of external A. into internal A. also takes place. The structurally functional approach to the structure of A. is based on the "unit" analysis (Lev Vygotsky), when the given reality is decomposed into "units" containing the basic characteristics inherent in this reality as a whole. The hierarchical ties between A. units are mobile. Depending on the position of the reflected object in the structure of A., the content of the psychological reflection, the level of reflection (conscious or unconscious) and the type of A. regulation (voluntary or involuntary) change. Analysis of A. in the dynamic plane is devoted to the study of mechanisms providing for the progression of A. per se: situationally independent activeness (see *Activeness, Situationally Independent*) which determines the self-development of activity and the appearance of new forms; and to the orientation which conditions the stability of purposeful A. in the constantly changing reality. A. is realised on the basis of psychological mechanisms studied in Nikolai Bernstein's "physiology of activeness" (see *Level of Movement Construction, Concept of*), Pyotr Anokhin's theory of "functional systems", (see *Acceptor of Action Result*), and Alexander Luria's ideas of systems organisation of higher cortical functions (see *Higher Mental Functions*).

Actualisation, retrieval of stored material from short-term or long-term *memory* for successive use in the course of *recognition; recall, recollection*, or direct *reproduction*. The extent to which A. is easy or difficult depends on the degree of memorising or forgetting of the stored material (see *Forgetting, Memorising*).

Adaptation, Sensory, adaptive modification of *sensitivity* to suit the change in the degree of intensity of the stimulus acting upon the *sense organ*. It may manifest itself in various subjective effects (see *After-Image*). A.,S. may be achieved through increases and decreases in absolute sensitivity (such as adaptation to darkness or light). A.,S. is characterised by the scale and speed of sensitivity modification and the selectivity of changes in relation to the adaptive influence. Thus, the processes of visual adaptation are partially selective towards spatial frequency and direction of the stimulus' movement in the field of vision; the processes of taste adaptation are

selective towards all salts but not towards various acids, etc. Physiological changes which lie at the basis of A.,S. occur both in the central and peripheral units of the *analyser*. The combination of neurophysiological and psychophysical methods (see *Psychophysics*) is of major importance for research into perception processes and the mechanisms of A..S. in particular.

Adaptation Syndrome, a totality of adaptation *reactions* of a human or animal organism of a generally defensive character, which develops in response to strong and prolonged pressures (*stress factors*). A functional state brought about by a stress factor is called *stress*. The concept of A.S. was introduced in 1936 by the Canadian physiologist Hans Selye. Three stages are distinguished in the development of A.S.: (1) the alarm stage, ranging from several hours to two days; it incorporates the phase of shock and the phase of counter-shock, the latter being the process of mobilisation of the organism's defensive reactions; (2) the stage of resistance, in which the organism achieves higher resistance to various disturbances; (3) either the stage of stabilisation and recovery or the stage of exhaustion which may result in death (see *Adjustment*).

Additiveness, a property of magnitudes consisting in that their sum corresponding to an object's parts equals the magnitude corresponding to the whole object. The size of a *group*, for instance, possesses the A. property, whereas *interpersonal relations* within it or *joint activities* do not.

Adjustment, conformation to the environment achieved by an organism's structure, functions, organs, and cells. The aim of A. processes is to maintain *homeostasis*. A. is one of the central concepts in biology, widely applied as a theoretical concept in those types of psychology which, like *Gestalt psychology* or the psychology of intelligence developed by the Swiss psychologist Jean Piaget, see an *individual*'s relationships with the environment as the process whereby homeostasis is sustained. The study of physiological regulatory mechanisms of A., increasing the organism's resistance to changes in temperature or barometric pressure, shortage of oxigen, or any other disturbing factors, is highly relevant to finding solutions to applied problems of *psychophysiology*, *medical psychology*, *ergonomics*, and other branches of psychology. Adaptive *reactions* to unfavourable pressures of high intensity have a number of common features and are collectively called *adaptation syndrome*. The processes of A. to extraordinary conditions are sometimes broken down into various phases (such as the phase of initial decompensation and the subsequent phases of partial and total compensation). A. changes occur at all levels—from the molecular structure of the organism to the psychological regulation of *activity*. Of key importance for successful A. to extraordinary conditions are training as well as the *individual*'s functional, mental, and moral states.

Adjustment, Social, (1) the process whereby an individual adapts to a new environment; (2) the result of such a process. The socio-psychological content of A.,S. is convergence of *goals* and *value orientations* of a *group* and an individual in this group, adoption by the individual of the group's norms and customs, the group culture; the individual's incorporation in the group's role structure. In Western psychology, the problem of A.,S. is developed within the framework of a trend which originated in the 1930s-1940s on the basis of *neobehaviourism* (Neal Miller, John Dollard, Robert Sears, and others) and branches of psychoanalytic psychology (see *Psychoanalysis*), connected with cultural anthropology (Ruth Benedict, Margaret Mead) and psychosomatic medicine (Franz Alexander, Thomas French). The social environment's and the individual's interests are seen as originally counterposed, and major significance is attributed to pathological phenomena (neurotic and psychosomatic disorders, drug-addiction, etc.). In Soviet psychology, the mechanisms of A.,S. are studied in the context of *joint activities* shaped by community of goals and value orientations of a collective; the degree of this community provides the basis for distinguishing the levels or phases of adjustment. The basic types of adjustment processes are determined by the structure of *needs* and *motives* of the individual. Two types are distinguished: (1) the type characterised by predominance of an active impact upon the social environment, (2) the type characterised by passive, conformist assimilation of the goals and value orientations of the group. A relevant aspect of A.,S. is acceptance of a *role*. A.,S. is one of the basic socio-psychological mechanisms of the *socialisation* of a personality.

Affect, an intensive and relatively short emotional state brought about by a sudden change in any circumstances vital for the subject and accompanied by vividly expressed motor changes and changes in the functions of visceral organs. A. is a response to the event which has already occurred, and is somewhat shifted to the event's conclusion. A. represents an inner conflict experienced by the person, caused either by the conflict of *drives*, *aspirations*, or *desires*, or the discrepancy between the demands placed upon the person (by others or himself) and his or her capacity for meeting these demands. A. develops in critical situations when the subject is unable to find an adequate way out of the dangerous and, more often than not, sudden situation. Possessing the traits of a *dominant*, A. delays mental processes irrelevant to it and imposes some stereotyped emergency way out of the situation (freezing, escape, aggression) shaped in the process of biological evolution and therefore justified only in typical biological conditions. Another important regulatory function of A. is the amassing of specific experience—affective traces (affective complexes)—which make themselves felt in confrontation with individual components of the situation

which has given rise to A. and which signal the situation's possible recurrence. The state of A. is characterised by narrowing of *consciousness* in which the *attention* of the subject is wholly concentrated upon the circumstances that have produced this state and the actions which it dictates. Impaired consciousness may result in the inability to recall individual components of the event which has given rise to A.; an extremely strong A. can result in loss of consciousness and complete *amnesia*. A. limits in the extreme the possibilities of spontaneous regulation of behaviour; hence the purpose of A.-preventing measures employed in pedagogic and psychotherapeutical practices is to prevent A. by avoiding A.-producing situations through performance of distracting acts, explanation of its undesirable consequences, etc. The degree of resistance to development of A. depends on the level of the personality's moral *motivation*.

Afferent Synthesis, in the theory of functional system (Pyotr Anokhin)—the synthesis of the material imprinted in *memory*, *motivation*, and information on the environment and the stimulus that sets the mind in action, achieved for the purpose of *decision-making*. Memory is seen as an aggregate of interrelated functional systems at various levels, formed in the course of evolution and in individual life-experience; motivation is seen as concretisation of one of the needs of the organism. In A.S., due to motivation, all systems whose operation has at one time or another resulted in satisfaction of this want are actualised. Information on the environment helps attain the required results. The final decision is made when some event—the impulse—adds pressure to one of the systems chosen under the influence of the given motivation and situation. Inasmuch as the hierarchy of the systems in memory reflects the evolution and individual history of the organism's adaptive correlations with the environment, there exists a certain hierarchy of A.S. As a systems process, A.S. does not occur in some discreet brain structure but is a process of interaction of neural impulses of various morphological origins (central or peripheral, afferent or efferent) embracing the entire brain and organism.

Affiliation, a person's desire to be in other person's company. A tendency towards A. increases with the subject's involvement in the potentially dangerous, stressful (see *Stress*) situation. The company of other people allows the person to test the chosen mode of behaviour and the nature of responses in a complex and dangerous situation. To a certain extent, the proximity to others directly decreases *worry*, mitigating the effect of both mental and physiological stresses. The blocking of A. causes a sense of loneliness and *alienation* and gives rise to *frustration*.

After-Image, a visual *sensation* continuing for some (normally short) period of time after a visual stimulation. There are positive and negative

A's. A positive A. is hued like the *irritant*, and remains for very short time. A negative A. persists for a longer time and is tinted with an additional colour as compared to that of the irritant. For instance, in response to red colour, a green negative A. would arise. At prolonged or intensive stimulation, one may observe several changeovers of positive and negative A's, which last dozens of seconds or even minutes (see ***Representations***; ***Eidetism***).

Age (in psychology), a specific relatively time-limited stage of the *individual*'s mental development and the moulding of his *personality*, characterised by a totality of objective physiological and psychological changes unrelated to idiosyncrasy. Transition from one A. stage to another is marked by restructuring and change of psychic development (see ***Mental Development***; ***Personality***). The psychological characteristics of A. are determined by concrete historical conditions in which the individual develops, by the nature of his upbringing, and by his specific *activities* and *communication* (1). Each A. is characterised by its specific "social situation of development" (Lev Vygotsky), and by specific correlation between the social environment and the intrinsic conditions that determine the individual's development as a personality. Objectively, the same elements of social environment influence people of different A. in different ways, depending on what previously developed psychological properties they are mediated with. The interaction of external and internal factors engenders typical psychological features common to people of the same A. to determine its specific; changes in correlations between these factors condition in their turn the transition to the next A. stage (David Feldstein). A. stages are distinguished by relativity and conventionally averaged characteristics; however, this does not exclude psychological variety of individuals. The A. characteristic of the personality development reflects a certain system of demands made by society on the individual at certain stages of life, and also the nature of his relations with other people, i.e. his social status. Specific A. characteristics are determined by how a child joins groups with different levels of development (see *Level of Group Development*) and educational institutions; by changes in the nature of family upbringing; by forming of new types of activity that help the child internalise social experience, a system of existing knowledge, norms and rules of human activity; and by the specifics of his physiological development. The notion of A. peculiarities and age boundaries is not an absolute criterion, since age boundaries are variable and depend on the historical period in question, and are different in different socio-economic conditions. The following A. classification is accepted in the USSR: infancy (from birth to age 1); pre-preschool childhood (age 1 to 3); preschool childhood (age 3 to 6); junior school age (age 6 to 10); teenage period (age 10 to 15); youth: first period (senior school age,

age 15 to 17) and second period (age 17 to 21); mature age: first period (age 21 to 35) and second period (age 35 to 60); elderly age (age 60 to 75); old age (age 75 to 90); and longevity (age 90 and more).

Agnosia, impairment of *perception* associated with certain *brain* lesions. Several forms of A. are distinguished: (1) optical or visual A.—failure to recognise the shape and nature of objects despite the retention of visual powers; (2) tactile A.—inability to recognise an object by touch (astereognosis) or impairment of the ability to identify parts of one's own body or the relation of its individual parts, i.e. a defect in appreciation of the body scheme (somatoagnosia); (3) acoustic or auditory A.—impairment of phonemic hearing, i.e. the ability to distinguish sounds, resulting in a speech disorder (see *Aphasia*) or impairment of the ability to recognise voices, melodies, etc. (despite the retention of elementary forms of hearing).

Agraphia, inability to communicate in writing accompanying various speech disturbances. It manifests itself either in a total loss of the ability to write or in misreading or transposition of words, omission of letters and syllables, inability to integrate written symbols, etc. In children, A. is a form of speech retardation due to innate brain disfunctions; it is also seen in speech disorders manifest in the impaired ability to distinguish sounds as a result of poor hearing or deafness. In adults, A. is a form of *aphasia*.

Alexia, loss of the ability to read resulting from damage to a specific area of the left cerebral cortex (in right-handers), or failure to acquire any reading ability. Various forms of A. are recognised as associated with the localisation of the lesion.

Algorithm, a procedure based on a system of rules prescribing that a group of *operations* are executed in a certain sequence; a strict adherence to the procedure allows all *tasks* of a certain class to be solved. A key to mathematics and mathematical logic, the concept is also applied in *psychology*, (*engineering psychology*, *pedagogic psychology*, *psychology of management*, etc.), though not in a strictly mathematical sense, in the study of managerial processes and of procedures for executing prescriptions in certain types of *activity*. A. includes indication of certain initial data essential for the solution of a task, the criterion (or rule) whereby the process is recognised as completed up on the achievement of a certain result. The ability to solve a problem "in general", i.e. mastery of certain methods of solving a specific class of problems, signifies mastery of a certain A.

Alienation (in psychology), the display of such life relationships of a *subject* with the surrounding world in which the products of the subject's activity, the subject himself, as well as other individuals and social groups, are

conceived as opposite to the subject, this opposition ranging from difference to rejection and hostility. This is expressed in corresponding emotional experiences, viz. feelings of isolation, solitude, rejection, loss of one's ego, etc. The notion of A. should not be confused with the alienation of the personality in an antagonistic class society. As a social process, A. is characterised by the transformation of man's activity and also of man's properties and capabilities into something independent of and dominant over the person in question. In social psychology, A. is used to characterise *interpersonal relations* in which the individual is set off against other individuals, groups, and the whole of society to come to experience a certain degree of isolation. Such conflict relations within a group are caused by the fact that the values conditioning joint activities are violated, and also by loss of the feeling of solidarity, when an individual in the given group perceives the other group members as alien and hostile to himself, rejecting their common norms, laws and prescriptions. Social psychologists in the West explain such A. primarily by individually typical traits of personality. Sigmund Freud used the concept to explain the pathological development of a personality in culture alien and hostile to man's natural character, this showing in the neurotic loss of the feeling of reality, or in the loss of one's *individuality* (*depersonalisation*). In this case, Freud thought *the unconscious* is the decisive factor in individual behaviour, which, in his view, leads to antagonism between that individual and the social environment (see *Freudianism*). In child psychology, the notion of A. is applied to express the essential factor in the establishment of the child's self-consciousness, in the development of his reflexive ability. In early age, the child feels merged with the surrounding world, unable to distinguish himself from his vital activity. In the later stages of *ontogenesis*, the notion of A. is associated with the child's attitudes towards himself, adults, equals, norms of behaviour and social demands that are expressed in rejection, disagreement, *negativism*. Basing on joint activity and communication, the individual develops an ability to look upon himself through the eyes of other people and to accept their attitudes.

Altruism, the system of a person's *value orientations* whereby interests of other persons or a social community are the central motive and criterion for moral evaluation. The term was coined by the French philosopher Auguste Comte as the opposite notion of *egoism*. Freud saw A. as the subject's neurotic need to alleviate a sense of guilt or as compensation for the *repressed* primeval egoism. The mechanism whereby A. is displayed can be of different nature: A. may be expressed in the subject's actions taken in some concrete dangerous situation (e.g. saving a child at the cost of one's own life) or be a conscious value orientation determining the subject's general behaviour, in which case it expresses the subject's purpose of living. Idealisa-

tion of A. is as erroneous as its underestimation. The real significance of altruistic behaviour is determined by the nature of values underlying the person's relationships with others. A. expressed in forgiveness, tolerance of shortcomings, blind sacrifice for the sake of other persons, including those who violate the norms of communist morality, is a negative personality trait. A. may be exhibited as a socio-psychological expression of *humaneness* (see *Identification, Collectivist*) in communication (1) and activity.

Ambition, the prominence of achievement motivation, the aspiration for glory, awards, and respect in some social sphere. Exaggerated A. is intensified by vainglory, i.e. by arrogant attitudes towards others. As a desire for social recognition, A. may objectively play a relatively positive role by stimulating social activities. However, being individualistic in nature, A. acts as a hindrance to fostering collectivism, to combining public and personal *interests*.

Ambivalence of Sentiments, coexistence of several contradicting emotions towards a given object. A typical case of A. of S. is when individual traits of a complex object impress a person's *needs* and *values* differently (thus, it is possible to respect the person's industry and disapprove of his/her hot temper). A specific case of A. of S. is the antithesis of stable *sentiments* towards a certain object and situational *emotions* deriving from it (thus, a person is hurt if some person or persons to whom he/she attaches positive value are inattentive to him/her).

Amnesia, loss of *memory* due to specific local lesions of the *brain*. Its two most common forms are retrograde A. and anterograde A. Retrograde A. refers to inability to recall events antedating the onset of the disorder (trauma, etc.): it extends backwards to include events that occurred several hours, days, or, sometimes, years prior to the cause of memory disturbance. Anterograde A. refers to inability to form memories of events subsequent to the onset of the disorder. It may encompass periods of various length. The most severe forms of A. were described by the Russian neurologist Sergei Korsakov, and are known as Korsakov's syndrome. There are forms of A. related to functional memory disturbances: post-hypnotic A.—loss of memory for events that occurred during a hypnotic stage; defensive A.—loss of memory (*repression*) for unpleasant (traumatic) experience.

Analgesia, loss or total absence of the *pain* sensation. A. may be achieved by taking an analgesic or by fixing *attention* on objects unrelated to the cause of pain (music, etc.), as well as by *suggestion, self-suggestion, hypnosis*. A. may also be achieved by massage (general or punctural) and by application of heat or cold to specific points on the body.

Analogy, similarity of certain aspects of dissimilar objects. Use of A. in

cognition provides a basis for insights and hypotheses. Deductions by A. have frequently led to scientific discoveries. Deductions by A. are based on the formation and *actualisation of associations*. It is possible to make a purposeful search for A. The task of making an A. is a component of psychodiagnostic examination. Difficulties in establishing similar aspects of objects by some abstract property indicate inadequate development or impairment of *thinking*.

Analyser, a neural apparatus that performs the function of analysis and synthesis of the *irritants* affecting the organism's internal and external environment. The term was introduced by the Soviet physiologist Ivan Pavlov. A. consists of: (1) *receptors* transforming a certain type of energy into a neural process (the peripheral unit); (2) afferent paths transmitting impulses from the receptor into the central nervous system and efferent paths transmitting nerve impulses away from the central nervous system (especially from the cerebral cortex) to the lower levels of A., including receptors, and regulating their operation; (3) projection fibers of the cortex. Each A. distinguishes an irritant of a certain type, providing for its subsequent separation into individual elements. Thus, the visual A. distinguishes a certain unit of electromagnetic oscillations, making it possible to differentiate the intensity, colour, shape, and other properties of objects. At the same time A. reflects spatial and temporal relationships of these elementary stimuli. Types of A. are distinguished according to the types of *sensitivity*: visual, auditory, olfactory, taste, tactile, motor, etc. Influenced by the environment in the process of *phylogenesis*, analysers developed and differentiated through constant sophistication of the central and receptor systems. Development and differentiation of the cerebral cortex provided for the development of higher *analysis* and *synthesis*. Due to receptor differentiation, the first phase of the analysis of sensory experience is achieved, when a given A. distinguishes *stimuli* of a definite type from the mass of sensory stimuli. In the light of current data on neural mechanisms, A. may be defined as a totality of receptors and the *detectors* connected with them which are hierarchically ordered: detectors of more complex properties are constituted by detectors of a more elementary order. A number of parallel detector systems is built up from a certain limited amount of receptors. A. is a component of reflex mechanism incorporating also the efferent mechanism (an aggregate of command neurons, motorneurons, and motor units) and special neurons—modulators—changing the degree of excitation of other neurons.

Analysis, the separation of the whole into its constituent elements. A. is present in all acts of the organism's practical and cognitive interaction with the environment. On the basis of practical *activity*, man has developed the ability to perform A. at the level of *concepts*. As an essential phase of

cognition. A. is inextricably linked to *synthesis*, and constitutes one of the basic operations in the process of *thinking*.

Analytical Psychology, the system of psychology developed by the Swiss psychologist Carl Jung, who gave it this name to differentiate it from Freudian *psychoanalysis*. Like Freud, Jung believed that the *unconscious* has a decisive role in the regulation of behaviour. In addition to the individual division of the unconscious, Jung distinguished the collective unconscious, the contents of which cannot be made conscious. The collective unconscious forms an autonomous mental fund which imprints the experience inherited from preceding generations through the *brain* structure. The basic mental elements—archetypes—(representations of what is fundamental and typical to all humanity) constituting this area of the mind are portrayed in the symbols of *creative activity*, rituals, *dreams*, and *complexes*. As a means of revealing hidden *motives*, Jung suggested inducing associations by stimulus-words (see *Association Experiment*): inadequate or delayed reply to the stimulus-word indicates the existence of a complex. A.P. sees the goal of mental development in individuation—the development of individual *personality* from the collective unconscious. Although A.P. rejects some principles of Freudian psychology (*libido*, for example, is understood not as sexual but as any unconscious psychic energy), in the light of materialist methodology this approach to personality and its development is as groundless as those in other branches of psychoanalysis, inasmuch as it denies the socio-historical substance of the motive forces of man's behaviour and the decisive role of consciousness in behaviour regulation. A.P. presents history, mythology, the arts, and religion in a false light, treating them as products of some eternal collective human psyche. The classification of personality types suggested by Jung (he recognised two general types: extrovert—oriented towards the external world, and introvert—one whose mental energy is turned inward) was developed independently of A.P. in concrete psychological studies of personality (see *Extroversion—Introversion*)

Anancasms, see *Obsessions*.

Animal Psychology, the science of the animal psyche, of the manifestations and regularities of psychic reflection at this level. A.P. studies the formation of psychic processes in animals in *ontogenesis*, the origins of the psyche and its development in the process of evolution, the biological requisites for and the origin of human *consciousness*. The thinkers of long ago paid attention to the abilities of animals. The birth of scientific A.P. at the turn of the 19th century is connected with the names of George Buffon and Jean Lamarck and, later on, Charles Darwin. In Russia, the founders of the scientific study of animal behaviour were Karl Rulier and V.A. Wagner, who laid the foundation for a materialist evolutionary trend in A.P. in the 19th and

20th centuries. This trend was further developed by Soviet psychologists, who refute anthropomorphic, idealistic and vulgar-materialist views of the psychic activity of animals, basing themselves on the Leninist theory of *reflection*. They study the animal psyche in dialectical unity with their external, primarily motor, activity (see *Instinctive Behaviour of Animals*; *Territorial Behaviour of Animals*), through which they establish all necessary ties with the environment. Ontogenesis and *phylogenesis* regard the complication of activity as the primary factor leading to the intensification, enrichment and perfection of the motor activity (Kurdt Fabri). Empiric study of the psychic activity of animals, their perceptual processes, orientating exploratory reactions, memory, emotions, skills and other types of learning (see *Learning by Animals*), intellect, etc., is carried out on the basis of an objective analysis of the structure of animal behaviour and requires an all-round account of the ecological particularities of the specimen, since, as distinct from man, the psychic activity of animals is totally determined by biological factors. That is the reason for the close link of A.P. with *ethology* and other biological sciences. The achievements of Soviet A.P. are particularly significant in studies dealing with the psychic regulation of the behaviour of supreme mammals (works by Nikolai Voitonis, Natalia Ladygina-Kots, et. al.).

Anthropogenesis, the evolution of man (Homo sapiens). Man emerged in the early Quaternary, several million years ago. The principal requisites for anthropogenesis were distinctions peculiar to anthropoid apes, such as a high level of development of both principal types of motor activity (*locomotion* and *manipulation*); maximum flexibility (among animals) of the forelimbs, particularly fingers of the forearm, and adaptation of limbs for performing fairly complex grasping operations; binocular vision, predominating over sense of smell and functioning in conjunction with the movements of forearms and their tactile and muscular sensitivity, thus ensuring a better knowledge of the physical properties of the objects of manipulation; highly developed forms of group behaviour (see *Group Behaviour of Animals*) and communication (see *Communication (2). Animal*). The primates (man's ancestors) assumed the fully erect attitude in walking. As a result, the forearm was relieved from the walking function to adapt to its principal function of manipulation. That ensured intensive development of instrumental actions (see *Instrumental Actions of Animals*) and a further rise in the level of mental activity. The latter was the foundation for the first specifically human, albeit primitive, labour operations, characterised by the use of specially prepared implements of labour. Joint labour gave rise to social relationships, followed by articulate *speech* and *consciousness*, which, in turn, had a substantial reciprocal effect upon the descent of modern man. As a whole, A. is characterised not so much

by morphological transformations (changes in the structure of man's direct ancestors) as by profound qualitative changes in *behaviour* and *psyche* and the establishment of fundamentally new attitudes to the surrounding world. In natural history, A. is an unprecedented leap forward from a biological to a social form of development (see *Animal Psychology*).

Anthropomorphism, attributing specific human characteristics and abilities to animals. The anthropomorphic interpretation of animal behaviour in terms of human *motives* and acts essentially rejects differences between man and animal, and consequently, disregards the qualities peculiar to human *psyche* (resulting from labour *activity*, social life, and articulate *speech*) and the decisive role of the social factor in man's life and activities and in mankind's development in general. The idea is based on the sociologisation of animal behaviour, and, as a rule, on the biologisation of man's behaviour, and the substitutions of biological factors for social factors and socio-historical regularities.

Anticipating Reflection, see *Acceptor of Action Result*.

Anticipation, the *ability* of higher living creatures (men and animals) to foresee the results of *actions*, the appearance of objects or of phenomena ("anticipatory reflection"). The A. ability derives from the central nervous system's capacity for "modelling" the course and outcome of future events on the basis of past experience.

Anxiety, an emotional state arising in situations of impending danger and manifested in expectation of unfavourable events. Unlike *fear* as a response to a specific threat, A. represents generalised, diffuse or pointless fright. In man, A. is usually associated with expectation of failures in social interaction, and is often caused by the fact that the source of danger is unknown. Functionally, A. not only forewarns the individual of a possible danger, but also compels him to seek and specify that danger, and to actively examine the environment so as to single out the threatening object. A. may manifest itself as a feeling of helplessness, uncertainty of oneself, lack of sufficient strength in the face of external factors, and exaggeration of their potency and threat. Behaviourally, A. manifests itself in generally disorganised activity. As a mechanism of *neuroses* (neurotic anxiety) forming on the basis of internal contradictions in the development and structure of individual psyche (for example, because of exaggerated level of aspirations, insufficiently-grounded moral motives, etc.), A. may lead to inadequate conviction that one is threatened by other people, his own body, the results of his own actions, etc. Empirical studies distinguish situational A., characterising the individual's state at a given moment, from A. as a personality trait (*worry*), which shows in a strong tendency to feel

A. about real and imaginary dangers. A. may be attenuated by defence mechanisms, e.g. repression, substitution, rationalisation, *projection*, etc.

Aphasia, systems disturbance of *speech* due to damage of a specific area of the left hemisphere of the *brain* (in right-handers). A. shows itself in violation of phonematic, morphological, and syntactical speech structures and inability to comprehend speech in the absence of faulty innervation of speech muscles (ensuring articulate speech) and while retaining elementary forms of hearing. The following seven types of A. are recognised, each resulting from impairment of one of the factors of speech and attributable to a specific area of the pathological process: (1) sensory A.—disturbance of phonematic hearing, i.e. inability to distinguish sounds in words, difficulties in understanding spoken speech (see *Speech, Oral*) of writing to dictation; (2) auditory-amnesic A.—disturbing of aural-verbal *memory*, showing itself in difficulties in comprehending speech in complicated conditions (fast speech, two simultaneous oral communications, etc.) and also in difficulties in spoken speech (difficulties in evoking words, verbal *paraphasias*) and in writing to dictation; (3) visual-amnesic A., which is essentially disturbance of visual memory (see *Memory, Sensory*), manifests itself in difficulties in naming objects and their representations—regardless of the retention of the power to name actions; (4) semantic A.—defective comprehension of certain logical and grammatical constructions, such as "father's brother", "brother's father", "spring before summer", combined with impaired ability to calculate and defective spatial *thinking*; (5) afferent motory A.—impaired ability to utter words, substitution of phonemes due to disturbed differentiation of similar articulatory movements essential to produce the word, accompanied with disturbed spontaneous writing and writing to dictation; (6) efferent motor A.—disturbed kinetic organisation of speech, difficulties in passing from one word (or syllable) to another due to inertness of speech stereotypes; (7) dynamic A.—failure to arrange words in a proper sequence, manifesting itself in defective speech planning and characterised by disturbed uttered speech and spontaneous writing and difficulties in *actualisation* of words denoting *actions*.

Apperception, the dependence of *perception* on the antecedent experience, on the general content of human mental *activity* and on man's personal traits. The term was coined by the German philosopher Gottfried Leibniz to denote clear (conscious) apprehension of a certain content by the *soul*. According to Wilhelm Wundt, A. is a universal principle of explanation, an "inner spiritual force" determining the course of mental processes. In contrast to these approaches to A. as an inner spontaneous activity of consciousness, contemporary scientific psychology treats A. as a result of an individual's life experience that allows him or her to form hypotheses on the

properties of what is perceived, providing for its conscious apprehension. Two types of A. are recognised: long-term A., which is a dependence of perception on the stable qualities of the *personality (world outlook, convictions*, education, etc.) and temporary A. influenced by situational *psychic* states *(emotions, expectations, attitudes*, etc.).

Apraxia, impairment of voluntary purposeful *movement* and *actions*, in spite of the absence of paralysis, paresis, or any other elementary motor disorder. A. is attributable to motor impairment of a higher order. The form of A. depends on the localisation of the brain lesion. The following basic types of A. are recognised: (1) kinesthetic A.—inability to carry out a set of necessary movements (particularly in the absence of a visual aid) due to impairment of kinesthetic (related to perception of one's own movement and location) analysis and synthesis; (2) constructional A.—impairment of the visual-constructional organisation of the motor act (maximal impairment of ability to carry out movements at different physical levels and in reproducing geometrical patterns); (3) kinetic (dynamic) A.—impaired ability to carry out a series of purposeful motor acts lying at the basis of motor powers, motor *perseverations; (4)* "frontal" regulation A.—impaired ability to move according to a preset programme, disturbance of speech regulation of spontaneous movements and actions, the appearance of complex perseverations, echolalias, echopraxias; (5) apractoagnosia—a combination of visual spatial disturbance (see *Agnosia*) and motor impairment in the form of a spatial (constructional) A.; (6) oral A.—impairment of the kinesthetic basis of the speech apparatus, often combined with afferent motor *aphasia*.

Artificial Intellect, (1) a conventional designation of the cybernetic systems and their logic-mathematic supply designed to solve some *tasks* usually requiring the application of man's intellectual *abilities;* (2) the totality of the functional abilities of the computer to solve problems which previously required man's obligatory participation. The term "A.I." should be regarded as a metaphor. The theories of programming, which sometimes include the theory of computers themselves, are forming the actual content of the theory of A.I. At present, of major importance is organisation of knowledge within A.I. systems, organisation of a *dialogue* between man and machine, and creation of hybrid intellect systems combining the mental abilities of human beings separated in time and space, providing for the use of information and computer technology adopted to each active participant in such systems. Psychology is a field where the ideas of A.I. are applied. In its turn, the knowledge of psychology is used in the theory of A.I. Psychology deals with the problem of the existing or lacking analogy between man's *psyche* and A.I. Although A.I. rests on modelling individual aspects and properties of human *thinking*, the confluence of

data obtained reflecting the functioning of the computer and the computer way of thinking does not make it possible to conclude that there exists a similarity between the compared structures. The emergence and application of A.I. systems proves the historical evolution of human cognitive activity, the appearance of new methods reflecting reality which are incorporated in A.I. systems and of new forms of correlation between individual and social consciousness and socio-historical determination of human activities. Applied research in psychology in the field of A.I. involves elaboration of psychological principles used in computer programme supply and the application of A.I. systems. The psychological research into man's intellectual activity and diological communication serves as a basis for the search for new ways of further improving computer systems and pooling the creative abilities of man and the formalised procedures carried out by the computer.

Aspiration, an initially motivated, sensually experienced *need* for or attraction towards an object. Depending on the degree of the subject's awareness, A. as a dynamic tendency takes the form of a *drive* or *desire* (see *Will*).

Assimilation, a basic way of acquiring socio-historical experience. In the course of A., an individual learns the social significance of objects and their utilisation techniques, and also the moral foundations of behaviour and forms of *communication* (1) with other people. All substantial elements of human *behaviour*, both motivational (see *Motivation*) and operational (see *Operation*), are subject to A. The basic intrinsic substance of the process of learning is in A. of the meanings of objects of material and intellectual culture and their utilisation techniques. The pivot of *education* is A. of the moral norms of behaviour. The effectiveness of A. (its quality, durability and speed) depends on the completeness of the *orientating basis of action* to be performed; on the objective, logical and psychological variety of the subject-matter involving the content to be mastered; and on measures to control the action-forming process. Along with A. of a new meaning (the formation of a concept), actualisation of the above-mentioned elements would lead to the forming of a full-value action for applying that meaning. The future results of A., i.e. of new actions, concepts, and forms of behaviour, would largely depend on their place within the structure of the types of *activity* meaningful for the subject of A.

Association, a relationship between psychic phenomena whereby the actualisation (*perception*, *representation*) of one phenomenon causes the recurrence of another. The concept was developed in the philosophical doctrines of the ancient world. From the simple statement of the fact of A. (the perception of some object brings to mind the *image* of its owner), psychology went over to explaining A. through organic processes occurring within the human organism. That lend-

ed the concept of A. a deterministic character (see *Determinism*): the recurrence of an object in the absence of any usual external *irritant* was attributed to the relations between organic processes fixed in the antecedent experience, the processes which, according to Aristotle, connect and form stable combinations by virtue of their similarity, contrast, or contiguity. When one member of the combination recurs in the soul, it "automatically" revives others, inherent in the organism. The term "association of ideas" was introduced by John Locke, who contrasts A's with relations formed on the basis of reasoning. The concept of A. became fundamental to many psychological systems of the 18th-19th centuries (see *Associationism*). A *conditioned reflex* is the psychophysiological basis of A.

Association (in social psychology), a *group* characterised by the absence of *joint activities*, organisation, and leadership, while *value orientations* mediating *interpersonal relations* manifest themselves in the conditions of group *communication* (1). Depending on the social character of the mediate factors, the following types of A. are recognised: (1) the pro-social A., to which positive moral *values* have been imparted by a broad social environment, and not shaped and fixed in the process of labour; when included in joint activities conditioned by objectives of a socially significant character and appropriate organisation and leadership, this type of A. develops by way of *collective formation;* (2) the asocial A., in which value orientations are of a negative or even anti-social character; in the setting of anti-social organisation and leadership, it easily grows into a *corporation*.

Association Experiment, a projective test (see *Tests, Projective*) introduced by Carl Jung as a means of revealing hidden affective *complexes*. A.E. was first applied to the problems of psychiatry. Later it came to be used for research and psychodiagnostic purposes (see *Psychodiagnostics*). The test involves supplying stimulus-words to which the subject must react in the quickest possible way with the next association that comes into his mind. A delayed reactions, inadequate understanding of the stimulus-word, its automatic repetition, the general behaviour of the subject (unmotivated laughter, complaints, blushing, etc.) are seen as indicating the presence of emotionally coloured notions which the subject is reluctant to repeat. The specific character of the complex may be revealed through interpreting the answers' content; this purpose may be served, among other things, by preliminary grouping of the more symptomatic reactions and expansion of their content by the use of the "free association" method. A.E. is often employed as a group test. Any type of A.E. requires that the nature of the more general and recurrent responses to every word on the list is revealed, that is to say, that the test be conducted on an adequately representative group of subjects speaking the given language. Apart from word stimuli,

other stimuli are employed: nonsense syllables, unknown words, drawings and pictures, colour spots, sounds, etc.

Associationism, one of the basic trends in psychological thought, explaining the dynamics of mental processes through the principle of *association*. The postulates of A. were first formulated by Aristotle, who put forth the idea that *images* recurring in the absence of any external stimulus are produced by association. In the 17th century, the idea was elaborated by the mechanical-determinist teaching of *psyche*. The organism was seen as a machine imprinting the traces of external stimuli, therefore the recurrence of one trace automatically causes the recurrence of another. In the 18th century, the principle of association of ideas extended to the entire area of the psychic, but was treated differently in various doctrines. On the one hand, there were George Berkeley and David Hume who interpreted association as the relation of phenomena in the *subject's consciousness;* on the other, there was David Hartley's system of materialist association. In the early 19th century, there appeared theories detaching association from its organic substratum and interpreting it in terms of the immanent principle of consciousness (Thomas Brown, James Mill, John Stuart Mill). A view took hold that: (1) psyche (identified with introspectively understood consciousness) consists of mental elements—*sensations*, elementary feelings; (2) elements are primary while mental combinations (*representations*, thoughts, *sentiments*) are secondary, produced by association; (3) the condition for association formation is contiguity of two mental processes; (4) the fixation of association is conditioned by the mobility of the assembled elements and by the frequency of association recurrence in the course of experience. A. has undergone a fundamental transformation thanks to the attainments of biology and neurophysiology. Hermann Helmholtz applied the new interpretation of association to his research into the *sense organs*. Charles Darwin used it to explain *emotions;* the Russian physiologist Ivan Sechenov, in his teaching of *reflexes* of the *brain*. Herbert Spencer's evolutionary approach added to A. the problem of the mental development in *phylogenesis*. Spencer arrived at an important conclusion of the adaptive function of psyche in *behaviour*. Numerous attempts at research into the field of association formation and actualisation were made in the 1880s-1890s (Hermann Ebbinghaus, Georg Müller, and others). At the same time, the narrow character of the mechanistic approach to association was demonstrated. The determinist elements of A. were, in a new interpretation, absorbed and transformed by Ivan Pavlov's theory of conditioned reflexes, and, albeit on a different methodological footing, by American *behaviourism*. Modern psychology also studies associations in order to clarify various mental processes, in particular, the problem of semantic associations and their role in education (see also *Association Experiment*).

Association Psychology, see *Associationism*.

Asthenia, nervous or mental weakness manifesting itself in tiredness (see *Tiredness*) and quick loss of strength, low *sensation threshold*, extremely unstable *moods*, and *sleep* disturbance. A. may be caused by disease as well as by excessive mental or physical strain, prolonged negative *emotional experience* or *conflict*.

Atrophy, degeneration of organic structures. In *psychology*, the term is used in the sense of degeneration of some mental function due to lack of *exercise* or to unfavourable or traumatic pressures (prolonged emotional *stress*, *conflict*, *frustration*, drugs, intoxication, etc.).

Attention, *activity* of a *subject* concentrated at a given moment on some real or ideal object (thing, event, *image*, discourse, etc.). A. also characterises coordination of various links in the functional structure of an *action* which determines the success of its execution, e.g. the speed and accuracy of a *task* solution. The range of problems involved in the study of A. has been outlined through differentiation of the broader philosophical concept of *apperception* (Gottfried Leibniz, Immanuel Kant, Johann Herbart). In Wilhelm Wundt's works, this term was related to processes through which one becomes distinctly aware of the content of the perceived object and it becomes integrated in the structure of past experience ("creative synthesis"). Nikolai Lange, a Russian psychologist who developed the theory of volitional A., has significantly contributed to the further development of ideas about A. Like the French psychologist Théodule Ribot, he linked A. with regulation of ideomotor motions (see *Ideomotor Act*) achieved in perceiving and conceiving objects. In contemporary *psychology*, studies of A. are performed within the framework of *general psychology*, and also *engineering psychology*, *psychology of labour*, *neuropsychology*, *medical psychology*, *developmental psychology*, and *pedagogic psychology*. Three forms of A. are distinguished. The simplest and genetically initial form is involuntary A., which is passive in character, since it is imposed on the subject by events extraneous to the *goals* of his activity. Physiologically, this form of A. manifests itself through *orientating reaction*. If activity is achieved within the framework of the subject's conscious *intentions* and requires volitional efforts on his part, one would speak of voluntary A., distinguished by an active nature, a complex structure mediated by socially developed organisation of *behaviour* and *communication* (2), and emerging in the process of practical activities. So-called post-voluntary A. may appear in the course of development of the operational-technical aspects of activity in connection with its automation and due to the transition of actions into *operations*, and also owing to changed *motivation*, e.g. shift of the *motive* to the goal. In this case, the trend of activity would continue to correspond to consciously accepted goals; however,

its actualisation would no longer require special mental effort and would be restricted in time solely by *tiredness* and exhaustion of body resources (Nikolai Dobrynin). Selectivity, span, stability, distribution and potential switch-over of A. are among the characteristics determined experimentally. Selectivity of A. is due to the subject's ability to successfully adjust himself (in case of hindrances) to perceiving information relating to some conscious goal. The number of objects that are distinctly comprehended simultaneously is taken for the span of A., which virtually does not differ from that of direct *memorising*, or from that of short-term memory (see *Memory, Short-Term*). This indicator would largely depend on the organisation and nature of the memorised material, and is usually taken to equal 5-7 objects. The span of A. is assessed by means of tachystoscopic presentation (see *Tachystoscope*) of many objects (letters, words, figures, flowers, etc.). To determine the subject's ability to switch over and maintain stable A., researchers use investigation methods which allow them to describe the dynamics of cognitive and executive actions in time, for instance, with changed goals. Distribution of A. is examined when the subject simultaneously performs two or more actions which cannot be fulfilled through rapid consecutive switch-over of A. Soviet psychology has developed a theory in which A. is regarded as a function of the subject's internal control of correspondence of mental actions to predevised programmes (Pyotr Galperin). Development of such control improves the results of any activity, specifically its regularity (see *Stepwise Forming of Mental Actions, Concept of*), and allows to overcome certain shortcomings of A., *distraction*, for instance. Soviet neuropsychologists are doing research into the brain mechanisms of A. (Yelena Khomskaya).

Attitude, a subject's readiness or predisposition in anticipation of a definite object (or situation); a state that ensures the stable and purposeful character of subsequent *activity* in relation to that object. The notion "A." was initially introduced into *experimental psychology* by German psychologists to designate some factor conditioned by past experience (like readiness to act in a given way), a factor determining the speed of reaction to a perceived situation and certain *illusions of perception* (Georg Müller), and also to describe an unconscious state of readiness when a task is set, a state that conditions the trend of various mental processes (Narzis Ach). Later, the notion of A. was introduced into social psychology and sociology to designate subjective individual orientations of both group (or society) members to different values that prescribe specific socially-accepted ways of behaviour (William Thomas and Florian Znaniecki). The basic shortcoming of various interpretations of A. is that they actually limit the area of social regulation of human behaviour by certain abstract conditions. As an explanatory principle in studying mental phenomena, A. was most exten-

sively studied by Dmitri Uznadze and his school (see *Set, Theory of*). In *general psychology*, A. is used to study purposeful animal behaviour; psychophysiological mechanisms of body adaptation to anticipated situations; selectivity and orientation of mental processes; mechanisms of unconscious regulation of individual activity; and forming of individual character. In *social psychology*, A. is used to study the relationship of an individual as a group member to various social objects; *self-regulation* mechanisms; stability and coordination of social behaviour; and the process of *socialisation* and variation of A., say, under the influence of propaganda (see *Psychology of Propaganda*), and also to forecast possible forms of individual behaviour in specific situations. The function, effects and essence of A. are revealed in studying its role in activity regulation. The basic functions of A. in activity are as follows: (a) A. determines the stable, consistent, and purposeful nature of activity, and acts as its stabilisation mechanism allowing to preserve its orientation in continually changing situations; (b) A. frees the subject from the need to take decisions and voluntarily control his activity in standard, previously encountered situations; (c) A. may also act as a factor that causes inert activity and makes it difficult for an individual to adapt to new situations. The effects of A. are only directly revealed when the conditions of activity change. Hence, the activity "interrupting" technique is commonly used to study the phenomenon of A. For instance, the subject is asked to compare two different "critical" objects after repeatedly being shown two different "attitudinal" objects (Uznadze's set fixation method). The content of A. would depend on the place of the objective factor inducing that A. within the structure of activity. Depending on the objective factor of activity (motive, goal, condition) A. is directed at, psychologists distinguish three hierarchic levels of activity regulation, namely, meaning-related, goal-related, and operational A's. Meaning-related A's express an individual's attitude, manifest in his activity, to the objects that have acquired a *personalised meaning*. In their origin, meaning-related A's are derivative from social A's. Meaning-related A's contain the informational component (individual's world outlook and the image of the object to which he aspires), the component of affective assessment (antipathies and sympathies towards meaningful objects), and the behavioural component (readiness to act in relation to an object that has a personalised meaning for the individual in question). By means of meaning-related A's, the individual joins the system of norms and values of a given social medium (instrumental function); they help preserve his status quo in tense situations (function of self-defence) and promote individual self-assertion (value-expressive function). They also take the form of his desire to structure the personalised meaning of knowledge, norms, and values contained in given A's (cognitive function). Having appeared in specific activity, A's may manifest themselves when

a person encounters similar meaningful objects and determine his behaviour in numerous similar situations. Such meaning-related A's become generalised A's, and then turn into personality traits. Unlike goal-related and operational A's, which change in the course of training under the influence of speech and instructions, change in meaning-related A's is always caused by change in individual activity per se. Goal-related A's are determined by the action's goal, and themselves determine the stable nature of that action. When an action is interrupted, goal-related A's manifest themselves as dynamic tendencies to complete the interrupted action (see *Unaccomplished Action Effect*). Operational A. occurs in solving a problem by accounting for conditions that characterise the existing situation and for the probability forecast of those conditions, said forecast being based on past behavioural experience in similar situations. These conditions are seen in stereotyped thinking, conformity, and so on. The psychophysiological mechanisms that actualise various operational A's manifest themselves in the body's overall tone, which expresses the subject's overall posture and certain preparation in the sensory and motor areas prior to initiating various action techniques.

Attitude Scale, a device used to compare individuals by the extent, strength and stability of their attitude to a given phenomenon. In applied sociology and social psychology, A.S. are used as a principal technique of data gathering, since here they are used to measure primarily personality traits. A.S. construction is connected with a selection of judgements that express the whole spectrum of possible attitudes of the subject to a given socio-psychological phenomenon. Every judgement is estimated by a group of experts using a *rating scale* to obtain an average score. A.S's would include judgements that have the highest score; normally, not more than 25 of 300 judgements would be included in a ready A.S. These judgements are told to persons whose attitudes are to be studied and, depending on which judgements the subject chooses, he is given a summated score which is his position on the *attitude scale*.

Attitude, Social, see *Attitude*.

Attraction, a feeling arising in *interpersonal perception*, rendering one person pleasant in the eyes of the other. The formation of A. in the *subject* is a result of the latter's specific emotional attitude, whose evaluation produces an array of *emotions* (ranging from hostility to *sympathy* and even *love*) and manifest itself in a special social *attitude* towards the other person. Experimental research is conducted into the mechanisms of affection and friendly feeling formation (see *Friendship; Love*) in person perception; causation of positive emotional attitudes, in particular, the part played by similarity of the subject's and object's characteristics and by the situation in which they find themselves (e.g. the degree to which attraction formation between the partners in *communication* (1) is influenced by the ties between them, frequency of

their meetings, distance between them, etc., as well as the resultant conditions of interaction: "helping behaviour", *joint activities*, etc.). The explanation of the phenomenon of A. in terms of *behaviourism* (holding that A. occurs in conditions of "reinforcement") and *cognitive psychology* underestimates the part played by social, historical, and functional conditions of its development.

Attribution, Causal, interpretation by the *subject* of the *interpersonal perception* of causes and *motives* of other persons' *behaviour*. The study of A., C. proceeds from the following postulates: (1) when cognising each other, people go farther than acquiring externally perceived information and strive to establish the causes of the subject's behaviour and to draw conclusions on personality characteristics; (2) inasmuch as information on a person acquired by *observation* is more often than not insufficient to draw reliable conclusions, the observer searches for possible behaviour causes and personality characteristics and attributes them to the observed subject; (3) this causal interpretation exerts a substantial influence on the observer's behaviour. The study of A.,C., which originally pertained purely to *social psychology*, has currently extended to other branches of psychological science: *general psychology*, *pedagogic psychology*, *developmental psychology*, *psychology of sport*. Fritz Heider laid the foundations for the study of A.,C. and defined its fundamental categories and principles. The chief areas of study are interpersonal perception, self-perception, and perception of a broad class of other social objects. The more essential results of experimental research in this field boil down to defining: (1) systematic distinctions in a person's explanations of his own behaviour and that of other people; (2) deviations of the process of A.,C. from the norms of logic under the influence of subjective (motivational and informational) factors; (3) a stimulating effect exerted on a person's *motivation* and *activity* by the explanation of unfavourable results through external factors, and of favourable results, through internal ones. Methods of practical application of A.,C. for the purpose of controlling *emotions*, *attitudes*, motivations, and efficiency of human activity are worked out on the basis of defined regularities. The development of this problem in Soviet social psychology is conducted on the basis of the methodological principle of work-mediated process of A.,C. (Galina Andreyeva). A.,C. is also approached as a phenomenon of group members' adoption of personal responsibility for successes and failures in the course of *joint activities*. It has been shown that for groups of a higher development level (collectives) this phenomenon is adequate to an actual contribution by collective members to the result of group activity. (See also *Transference*).

Authoritarianism, a socio-psychological characteristic of a style of management (*leadership*), manifested in concentration of complete power over others in the hands of one person, in removal of others from decision-

making on all major aspects of *joint activities*, in suppression of their initiative, and in pressures exerted upon them by predominantly coercive measures (see *Leadership; Style of Leadership*).

Authority, (1) command over others wielded by a *group* or an *individual*, based on recognition of their efficiency, knowledge, moral virtues, etc.; (2) recognition of an individual's right to make decisions in situations significant for individuals or the group. In the former case, A. is sometimes identified with the notion of power. The second definition does not necessarily refer to power, for A. may be vested in a person who, though possessing no legal power, has a high degree of referentiality in the eyes of others.

Autogenic Training, a psychotherapeutic method of treatment consisting in teaching patients to achieve muscular *relaxation* and *self-suggestion*, concentrate attention, develop imagination, be able to control involuntary mental processes for the purpose of raising the efficiency of the subject's activity. Two stages of A.T. are distinguished: (1) training in relaxation, self-induced sensations of weight, heat, and cold, showing that the patient is capable of regulating vegetative functions; (2) achievement of hypnotic states of various levels (Johann Schultz). A.T. is employed in the fields of medicine, sports, education, production, and *self-education*.

Autohypnosis (self-hypnosis), *hypnosis* caused by *self-suggestion*, in contradistinction to heterohypnosis induced by another person. Purposeful self-inducement of a hypnotic state is achieved through certain methods (see *Hypnotisation*). Propensity for A. depends on the physical and emotional state, personal characteristics, ability for self-regulation of physiological and mental functions. Currently A. is employed as a method of *autogenic training*.

Automatism (in psychology), performance of *action* in which *consciousness* is not directly involved. We distinguish between "primary" A. and "secondary" A. The first category includes innate reflex actions, the second—those A's which develop in the course of individual life. The latter is the type of A. whereby a uniform rigid relation develops between certain aspects of the given situation and a series of consistent *operations* which have previously required conscious orientation. Consequently, there is no longer a need to orient oneself in the situation and in the actual execution of certain operations (by virtue of their standard nature). The rise of a significant situation (or the presence of a significant aspect of the situation) immediately launches the entire series of operations. If, in the case of "secondary" A., a need arises to return to conscious orientating (due to mistakes in or barriers to A.), "deautomatisation" may occur. Normally, automatism is a component of a consciously regulated action; isolated A. signifies pathology. Motor, speech, and intellectual A's are recognised. A's are studied both by *general psychology*

(*skill* development) and in applied psychology (see *Medical Psychology; Engineering Psychology*).

Aviation Psychology, the branch of psychology that deals with psychological characteristics peculiar to various areas of aviation and their dependence on a number of factors: aviation technologies, personality traits, flight missions, flight conditions, training methods. A.P. is concerned with the study of psychological principles regulating various types of activities involved in aviation and their application in the training and education of air pilots. Research in this field is oriented towards improvements in the organisation of flights, routine of air pilots' work and leisure, practice of flight expert analysis. The rise of A.P. in the USSR laid the basis for the development of *space psychology*, playing a major part in the exploration of outer space.

B

Barrier, Semantic, an incongruity of meanings in the demands, requests, orders, etc., as understood by partners in *communication* (1), resulting in hindrance to their mutual understanding and interaction. For instance, B.,S. in adult-child relationships arises because a child, though finding the adults's demands justified, would not accept them because they are alien to his experience, views, attitudes, and system of *personalised meanings*.

Barriers, Psychological, mental states manifested in the subject's inadequate passivity which prevents him from performing certain actions. The emotional mechanism of B.,P. consists in intensified negative emotional experiences and attitudes—shame, feeling of guilt, fear, anxiety, and low self-appraisal, etc.—all associated with a given task (e.g. stage fright). In an individual's social behaviour, B.,P. are represented by communicative barrier [barriers in *communication* (1)], which are manifested in the absence of ***empathy***, regidity of interpersonal social attitudes, and also in semantic barriers (see *Barrier, Semantic*).

Behaviour, interaction with the ambient environment, inherent in living creatures and mediated by their external (motor) and inner (psychic) *activeness*. The term "B." is applicable both to individual species and their aggregations (B. of a biological species and B. of a social group). Initial attemps to scientifically comprehend B. were based on mechanistic determinism, whose categories interpreted B. as analogous to interaction of physical bodies. The evolutionary teaching in biology (Charles Darwin) allowed to explain the purposeful nature of B. of living creatures by intensely developing objective methods of B. examination in unity with its external and internal manifestations. The teaching on the higher nervous activity of animals (the Russian physiologist Ivan Pavlov considered it to be synonymous to B.) developed on the basis of biological *determinism*. *Behav-*

iourism contrasted B. to consciousness, assuming B., reduced to a set of motor responses to external *stimuli*, to be the only subject of psychology. Subsequently, the proponents of behaviourism introduced amendments into this scheme (see *Neobehaviourism*). In Soviet psychology, human B. is interpreted as *activity* with natural premises, but basically conditioned socially by *language* and other symbol and semantic systems, labour being the typical form of that activity, and *communication* (1) its attribute. The peculiarity of personal B. would depend on the nature of the individual's relationships with groups of which he is member, and on group norms, value orientations, and role prescriptions. Inadequate B. (manifesting itself, among other things, in overestimation by the individual of his potentials, splitting of *verbal* and real plans, and weakened criticalability in controlling the implementation of the B. programme) negatively affects *interpersonal relations*. B. is studied not only by psychology, but also by other biological and social sciences, and in some aspects by cybernetics as well.

Behaviour, Aggressive, a specific form of human action characterised by display of superiority in or use of strength towards another person or group of persons to whom the subject in question seeks to do damage. B.,A. may vary in intensity and form, ranging from display of hostility to offensive language ("verbal aggression") and use of brute physical force ("physical aggression"). In socio-psychological terms, summation of individual B.,A., i.e. transformation of interpersonal aggression into intergroup aggression within the framework of so-called *mass phenomena*, is essentially significant. West European and US psychologists give numerous explanations of B.,A. For instance, psychoanalysts see it as a manifestation of the *Aedipus complex*, the result of suppressed instinctive libidinal (see *Libido*) drives in early childhood (Sigmund Freud). *Neobehaviourism* believes B.,A. to be caused by *frustrations* experienced by the individual in the course of "social learning" (John Dollard, Neal Miller, Albert Bandura, and Leonard Berkowitz). *Interactionism*, asserts that it is the result of an objective "conflict of interests", "incompatibility of goals" of individuals and social groups (Donald Campbell and Muzafer Sherif). Cognitivism sees it as the result of "dissonances" and "incongruencies" in the subject's cognitive sphere (Leon Festinger) (see *Cognitive Balance, Theories of*). There are also open attempts to explain B.,A. as biologically-conditioned and purely instinctive (Konrad Lorenz). Despite the explanations of B.,A. proposed by Western psychologists, they prove unsatisfactory because they tend to ignore the distinctions between the social nature of man and biologically-conditioned animal behaviour, and to often interpret behaviour motivations in an overtly idealistic way. To understand the origin of specific B.,A. manifestations, one must establish the place of B.,A. within the overall structure of individual and collective activity, e.g. to

show whether an aggressive act is either an inadequate defence reaction, or has an independent purpose and meaning to turn into a specific individual or collective activity (in cases of so-called *deviant behaviour*).

Behaviour, Field, a *subject's* prevalent orientation to situationally meaningful objects of perceived surroundings, in contrast to orientation to a chosen *goal* of activity; a set of impulsive responses to environmental *stimuli*. B.,F. is observed in early childhood, and also in certain disorders of self-control in adults.

Behaviourism, an orientation in 20th-century US psychology that rejects *consciousness* as a subject of research and reduces *psyche* to various forms of *behaviour* understood as a set of body reactions to environmental *stimuli*. In the late 19th and early 20th century the previously dominant introspective "psychology of the mind" (see *Introspective Psychology*) was found to be unsound, particularly in solving problems related to *thinking* and *motivation*. The existence of mental processes unrealised by man and inaccessible to *introspection* was experimentally proved. In studying animal responses by means of labyrinths, problem cages, devices for examining discriminating power, (see *Methods of Animal psychology*), Edward Thorndike established that the problem could be solved by the *trial and error method*, which he interpreted as a "blind" selection of random movements. He also applied this conclusion to man's learning processes, and Behaviourists denied that in this case human behaviour differed qualitatively from animal behaviour. At the same time, the Russian physiologists Ivan Pavlov and Vladimir Bekhterev further developed Ivan Sechenov's ideas and elaborated experimental methods for objective examination of animal and human behaviour. Their works significantly influenced the Behaviourists, but the latter interpreted them in the spirit of extreme mechanicism. The first behaviourist programme, formulated by the US psychologist John Watson, appeared in 1913. Subsequently, B. came to involve the "physical monism" of Albert Weiss, the "anthroponomy" of Walter Hunter, the views of Karl Lashley, etc. Proceeding from the fact that consciousness is allegedly inaccessible to objective study, B. rejects its role as a regulator of human *activity*. B. reduces all psychic phenomena to chiefly locomotor responses of the organism, while identifying *thinking* with speech articulation, *emotions* with visceral changes, etc. In this case, the stimulus-response relationship is taken for a behavioural unit. According to B., the laws of behaviour fixate relations between what is happening at the "input" (stimulus) and "output" (locomotor response) of an organism. In line with the positivist *methodology*, B. regards both mental and physiological processes in that system as scientifically non-analysable, since they cannot be directly observed. B.'s principal method is observation and experimental study of body responses to environmental effects so as to reveal mathe-

matically describable correlations between the two variables. Behaviourists performed most of their experiments on animals (chiefly on white rats) to subsequently apply all established regularities to human beings. At the same time, they ignored body *activeness* and the role of its psychological organisation in transforming the environment, and also man's social nature. Behaviourist ideas influenced linguistics, anthropology, sociology, and semiotics and became a source of cybernetics. Behaviourists made a substantial contribution to the development of empirical and mathematical methods for studying behaviour, and to posing a number of psychological problems, especially those relating to *learning*, whereby the organism acquires new forms of behaviour. B.'s main contribution to the development of conceptual system of psychology (see ***Categorisation***) was in elaborating the category of ***action*** previously regarded only as an internal act or process, whereas B. expanded the sphere of psychology by also including outward bodily responses in that category. Yet, due to methodological drawbacks in the initial B. postulates, already in the 1920s it began to break up into a number of trends combining the mainstream doctrine with elements of other theories, e.g. *Gestalt psychology* and *psychoanalysis* and this gave rise to ***neobehaviourism***. B.'s evolution showed that its initial principles cannot stimulate progress of scientific knowledge about behaviour. Even psychologists educated on these principles are coming to the conclusion that they are unsound, and that there is a need to include the concepts of *image*, inner ("mental") aspect of behaviour, etc. in the main explanatory concepts of psychology, and to also refer to the physiological mechanisms of behaviour. At present, only few US psychologists (Burrhus Skinner and his school being most consistent and irreconcilable) continue to defend the postulates of orthodox B.

Behaviour Therapy, a method of psychotherapy based on the principles of *behaviourism* (widespread in the United States). B.T. regards mental and emotional disorders as disturbed individual adjustment to existing conditions. B.T. is designed to form habits that would facilitate conforming human adjustment to reality. The difference between normal and abnormal behaviour is determined merely by the degree of individual adjustment. Hence, any disagreement with social conditions and any action against them are also interpreted as "anomalies" which, like *neuroses*, need to be corrected therapeutically. In equating psychopathologic phenomena and actions against the injustices of capitalist society, B.T. is an ideologically reactionary theory. At present, the notion "behaviour modification" is quite often substituted for the concept of B.T.

Belief, a realised personal *need* prompting the individual to act in accord with his value orientation. The need's content expressed in the form of B. essentially reflects a definite understanding of nature and society. Forming a structured system of political,

philosophical, aesthetic, natural-science, and other views, the totality of B's takes the form of individual *world outlook*. The presence of stable B's with elements of communist world outlook is indicative of the individual's high level of activeness under the socialist system, the measure of this activeness being the organic unity of knowledge, B's and practical actions.

Bias, an *attitude* that prevents adequate perception of a given communication or action. As a rule, people either do not realise that they are biased, or are reluctant to do so, and regard their attitudes towards an object of B. as the result of objective and independent assessments of certain facts. B. may result from hasty and unfounded conclusions based on personal experience (see *Stereotype, Social*), and also from uncritical assimilation of standardised judgements that have been accepted in a given social group (prejudice). People often use B. to justify unseemly actions.

Biogenetic Law (in psychology), extrapolation to child's mental development of the correlations between *ontogenesis* (individual development of organisms) and *phylogenesis* (historical development of organisms) established by the German naturalists Fritz Müller and Ernst Haeckel. This approach incorrectly asserts that the ontogenesis of child's mind reproduces the basic stages of biological evolution and the stages of human cultural development (James Baldwin, Karl Bühler, Stanley Hall, William Stern et al.). As a result, the proponents of this view maintain that a child's psychological development is predetermined, and ignore the concrete historical nature of this process and its dependence on the forms and ways in which the child communicates with the environment (primarily with adults), and on the nature and substance of his own *activity* (see *Developmental Psychology*).

Boomerang Effect, a socio-psychological phenomenon manifesting itself in the fact that, in receiving and assessing information aimed to change an individual's social attitudes, judgements and opinions, the said individual not only sticks to his original views, but also becomes even more convinced in their correctness. B.E. occurs most frequently when persons to whom information is addressed show manifest hostility towards its source or towards the person who transmits it, and also when people are forcibly compelled to lengthily perceive information in which they are totally disinterested.

Bouguer-Weber Law (sometimes called Weber's Law), a directly proportional dependence of differential threshold (see *Sensation Threshold*) ΔI on stimulus intensity I, to which a given sensory system is adapted (see *Adaptation, Sensory*): $\frac{\Delta I}{I} = k$ (const.). The dependence serves to distinguish between univariate sensory *irritants*. The coefficient k, which has been termed the Weber factor, differs for various sensory irritants: 0.003 for sound pitch; 0.02 for visible clarity; 0.09 for sound loudness, etc. It establishes the level the stimulus should

be increased or decreased to in order to obtain a hardly discernable change in sensation. This dependence was established in the 18th century by the French scientist Pierre Bouguer, and studied subsequently in detail by the German physiologist Ernst Weber. The Fechner Law (see *Weber-Fechner Law*) developed and to a certain extent interpreted B.-W.L.

Brain, the central part of the *nervous system* of men and animals, the main organ of *psyche*. In vertebrate animals and man, distinction is made between the spinal cord (situated in the spinal canal) and cerebrum (in the cranium). B. is covered by three membranes—hard, arachnoid and vascular. The B. tissue consists of grey (accumulation of nerve cells) and white (accumulation primarily of nerve-cell appendages) matter. The spinal cord is divided into four parts: cervical, thoracic, lumbar and sacral, and also into segments (altogether 31 to 33). The continuation of the spinal cord in the cranium is a medulla. The cerebrum consists of a stem and the forebrain. The latter is divided into two hemispheres—right and left—by a central fissure. The main mass of the hemispheres of the big (fore) B. is comprised of subcortical (or basal) nuclei, and also of subcortical white matter. The hemispheres of big B. are covered with a layer of grey matter—the cortex. From the viewpoint of psychology we cannot speak of "localisation" of a separate psychological function in one or another area of B. Psychological functions represent functional systems operating through the joint work of the ensemble of the B. zones. Moreover, Alexander Luria distinguished three main blocks in the B. of man: (1) tonus block of the cortex (energy block of the brain); the sources of tonus are both the inflow of information from the outside world and impulses from the internal medium; (2) the block of the reception, processing and storage of information comprising the mechanisms situated in the back parts of the brain cortex, and, as distinct from the mechanisms of the first block, possessing modal-specific characteristics (visual, audio or tactile information); each zone of the cortex included in this block, which is built on an hierarchical pattern, consists of three levels: the primary zones carry out the function of dividing (*analysis*) of incoming information; the secondary zones carry out the function of uniting (*synthesis*) or complex processing of the information received by the subject; the tertiary zones serve for combining the information received from individual *analysers*; (3) the block of programming, regulating and controlling activity, which includes mechanisms situated in the front lobes of the big hemispheres, in which the leading place is occupied by the forehead parts of big B. This block is also built on the hierarchical principle: the primary motor areas carry impulses to definite muscle groups; the secondary (premotor) areas prepare the release of motor impulses and ensure performance of complex motor (kinetic) "melodies" (motor skills); the tertiary

parts of the frontal lobes (well-developed only in man) play a decisive role in creating *intentions* and forming action programmes which implement these intentions, and in activity control (see also *Functional Asymmetry of the Brain*).

Brain Biorhythms, a form of background or spontaneous electrical activity of the brain. A biorhythm represents a regular or rhythmic activity characterised by prolonged recurrence of a given wave with insignificant frequency variation. At a given body state (mental strain, emotional stress, sleep, etc.) one would record B.B. of definite frequency and character. Apart from B.B. distinguished are irregular or arhythmic type of brain activity, which involves waves of different lengths and amplitudes, and paroxysmal activity in the form of groups of waves and complexes whose amplitudes would suddenly rise and fall.

Brain-Storming, a method of stimulating creative *activeness* and productivity, based on the assumption that during the usual methods of discussion and solution of problems the appearrance of innovative ideas is obstructed by control mechanisms of *consciousness* which fetter the flow of these ideas under the pressure of customary, stereotyped forms of *decision-making*. An inhibitive influence is also exerted by the *fear* of failure, fear of looking funny, and others. To remove the effect of these factors a meeting of a *group* is held, where each member states any thought on the proposed subject without controlling their flow, or assessing them as genuine or false, senseless or strange, etc., endeavouring at the same time to induce others to similar free *associations* of ideas. After the first round of B.S. the general mass of expressed ideas is analysed in the hope that among them there will be at least a few that contain the most propitious solutions. The method of B.S. was widely used in the 1950s in such countries as the USA and France primarily when discussing the technological problems of planning and forecasting. The practical use of the method led to a sceptical attitude to its efficacy, and experimental psychological testing failed to confirm its superiority in solving creative problems.

C

Capability, an *action* method mastered by an individual and ensured by the totality of knowledge and *skills* acquired by the latter. C. is developed through exercise, making it possible to perform actions not only in habitual conditions, but also in changed environment.

Catalepsy, a sleep-like condition characterised by a lack of response to external and internal *stimuli*, a "waxy flexibility", in which the limbs hold any position they are placed in. C. may occur in hypnotic slep (see *Hypnosis*), and also in some

mental diseases, such as schizophrenia and hysteria.

Categorial Analysis (in psychology), a method of studying the development of psychological cognition as an *activity* (Mikhail Yaroshevsky), elements of which are concrete scientific categories, which reproduce different aspects of psychological reality (*image*, *action*, *motive*, etc.). Two levels are distinguished in psychological cognition; empirico-theoretical and categorial. The first level is represented in the consciousness of scientists who deal with facts, hypotheses, conceptions, etc. As for the categorial apparatus which directs this type of consciousness, its role can be revealed only through a special C.A. as a specific variety of historico-theoretical research. The use of C.A. permitted, specifically, to understand the object-logical factors of transforming *psychology* into an independent science, distinguished from philosophy and physiology (this was determined by the appearance of its own scientific-categorial structure). A C.A. of different scientific schools reveals the dependence of their rise and fall, apart from other factors, on the logic of development of psychological knowledge (e.g. the appearance of *behaviourism* was linked with the introduction into the category of psychological action of such indications as objective observation in the system of an organism's connection with the environment, and the disintegration of this school—with the interpretation of the category of a psychological image in the spirit of former introspectionism). As a form of self-cognition of science, C.A. serves to study the regularities of its development with the aim of effective organisation of new research.

Categorial System of Psychology, a general, deep-going, and historically developing cognitive structure which reflects both the psychic reality as a whole and its specific inherent characteristics. C.S. of P. determines the construction of concrete theories and empiric knowledge. A special *categorial analysis* is required to bring to light the components of C.S. of P., the level of their development and forms of interconnection. C.S. of P. is formed under the impact of social practice, including the practice of scientific research.

Categorisation, a psychic process of attributing a single object, event, *emotional experience* to a certain class, which may be represented in the form of *verbal* and non-verbal *meanings*, *symbols*, sensory and perceptual standards, social *stereotypes*, behavioural stereotypes, etc. The C. process is included directly in the processes of *perception*, *thinking*, *imagination*, the object of which is perceived and thought of not as a single, immediate entity, but as a representative of some generalised class, and the peculiarities and characteristic properties of this class of phenomena being transferred to this object. The content of the notion of C. in *cognitive psychology* corresponds to the postulate on the mediation of mental processes by socially evolved

standards, or generalisations, that bear in themselves the sum total of social experience—the postulate adopted in the framework of the theory of *activity*. The vehicles of this experience are primarily the semantic structures of a natural language (verbal meanings); symbols, *expressive movements*, rituals, and also formulas, schemes, drawings, etc. may be a form of fixation of experience. In individual experience, C. is a form of its classification by way of developing and changing categories and standards of social consciousness. The differential-psychological aspects of C. characterise the specifics of the subject's reflection of the world. Being a means of cognising the world, categorial structures of individual consciousness as such may not be realised by the subject. C. forms possess a complex hierarchical organisation, whose structure and functioning are studied by genetic and *general psychology*.

Catharsis, initially: the emotional shock, a state of inner purification experienced by a viewer of ancient tragedy as a result of a special feeling of concern for the fate of the hero, which, as a rule, concluded in his death. In *psychoanalysis*, a special therapeutic procedure, consisting in the release of tension, "reaction" to an affect, which had been repressed into the subconscious and is the cause of a neurotic conflict.

Causal Scheme, a notion used in social psychology to indicate: (a) the principles for analysing causality in the sphere of social perception (see *Social Perception*); (b) stable perceptions of specific causal chains. This notion became widespread with the development of the study of causal attribution (see *Attribution, Causal*). According to George Kelly's social psychology theory (1972), one of the most widespread in the West, the three basic principles of C.S. are: (1) the discounting principle—perception of the role of a given cause in the determination of events as the lesser in view of the presence of other causes, which potentially facilitate its appearance; (2) the augmentation principle—perception of the role of a given cause in the determination of events as the greater as a result of the presence of factors obstructing its appearance; (3) the principle of attributional errors—a systematic deviation of the causal explanation of people's behaviour from the rules of formal logic. The main trend in these errors is an overestimation of the subjective causes of behaviour and an underestimation of its objective causes. The general principles of C.S. are seen as the most general and stable regularities of the functioning of the more concrete schemes of causality. The more particular C.S's, which represent a stable perception of a concrete causality of phenomena, are distinguished by degree of complexity, generalisation and consistency of inclusion in the analysis. The main factors determining the level of C.S. used in the analysis of causality on the level of "everyday psychology" is the degree of complexity of the perceived objects and their correspondence to an individual's expectations.

Centration, an effect revealed by the German psychologists Wolfgang Köhler and Max Wertheimer in the study of visual illusions whereby the elements on which the subject's gaze is fixed appear more salient than others. *Gestalt psychology* explained this effect, caused by several objective factors, by the presence of "bad" and "good" structures in perception. In the concept of the Swiss psychologist Jean Piaget, C. is a process involving subjective expansion of the "attention focus" zone and distortion and compression of the peripheral perceptual field; hence C. causes the object to deform and leads to a "systematic error" in operating and manipulating its image. To overcome that error, the subject must develop *decentration* skills. Piaget substantiated the qualitative distinction of C. forms in *perception* and in *intellect*, and also singled out other phenomena, e.g. *egocentrism*, religious and political *stereotypes* of public consciousness, etc. The C. effect was revealed in studies on interpersonal perception by the US psychologist Solomon Asch, who established that when one individual creates an integral idea about the personality of another, some of the latter's perceived qualities come out as central ones, around which other characteristics and qualities would group.

Character, a set of stable personality traits which are established and manifest themselves in *activity* and *communication* (1), conditioning *behaviour* typical of the given personality. Knowledge of an individual's C. allows to foresee with considerable probability his behaviour and thus adjust anticipated actions. C. is conditioned by the individual's social being and social experience, which engender typical traits of C. determined by typical circumstances in specific historical conditions. C.'s individual uniqueness, engendered by diverse and unique situations involving the subject's *socialisation*, education, and nature-dependent development (see *inclinations*, *temperament*, *higher nervous activity*), shows in unity with its socially typical factors. Among numerous individual traits, some are main and others secondary. The latter may both match and sharply contrast with the main traits to form either integral or contradictory C's. Manifesting itself in activity, C. forms therein and reveals its dependence both on activity as such and on its *personalised meaning* for the inividual, on the one hand, and on the actual, objectively assessed success of that activity and on the individual's subjective attitude towards his own successes and failures (see *Level of Aspirations*), on the other. C. manifests itself within a system of man-environment relations: in the individual's attitude to other people reflected either in sociable or reserved disposition (see *Extroversion-Introversion*), truthfulness or mendacity, tact or rudeness, etc.; to one's work (responsibility or carelessness, diligence or laziness, etc.); to oneself (modesty or self-love, self-criticism or self-assurance, pride or humility); and to property (generosity or greed, frugality or wastefulness, accuracy or

slovenliness). C. is dependent on one's *world outlook*, convictions and moral principles, through which the individual displays his social essence. For instance, honesty, a principled approach, and *humaneness* are intrinsically linked with communist convictions, while hypocrisy, lack of principles, and callousness are incompatible with them. And yet, personal traits themselves do not unambiguously determine the individual's social stance, for cheerfulness and worry may typify people with diametrically opposite convictions. Relatively stable individual traits do not exclude the possibility of a highly flexible C. Social education and the individual's involvement in collectives have decisive significance in forming C. (see *Characterology*; *Accentuation of Character*).

Characterology, (1) in a broad sense, study of *characters*; (2) a trend in 20th-century German psychology which interprets human individuality as a psycho-somatic unity characterised by primacy to the environment in which it exists and determined behaviourally by its primordially innate properties. Ludwig Klages, chief advocate of C., believed that the study of character should rely on observation, description and systematic interpretation of expressive individual movements, rather than conscious subjective states, e.g. handwriting, gestures, and so on. This empirico-psychological doctrine was based on the metaphysical theory that the "spirit is the psyche's opponent", a concept that goes back to Friedrich Nietzsche's views, according to which a contradiction between the individual's spontaneous life embodied in his unique integral personality and impersonal universal spirit that destroys his uniqueness, are inherent in man. C. deals mainly with: (1) establishing the basic types of character; (2) "identifying" the type of character by its manifestations in every specific case so as to allow for an integrally individual-psychological understanding and forecast of human behaviour in definite situations. The history of psychology knows of two basic approaches to the problem of character. In line with the first approach, a "static" character is regarded to comprise an invariable set (structure) of basic traits irrespective of how that character was found to have formed and developed. This view was finalised by the German psychopathologist Ernst Kretschmer, who examined character in connection with body structure, as man's mental constitution corresponding to his somatic constitution, explaining character in the final account by innate, primarily endocrine factors. In the *psychoanalysis* of Sigmund Freud and his students (Carl Jung, Alfred Adler, and others), the forming of individual traits and types of character is believed to result from man's intense work designed to solve conflicting situations. From this viewpoint, character is the "crystallisation" of human struggle for implementing man's largely unconscious life project. With regard to this interpretation, C. shares the methodological vices of *Freudianism*. Soviet psychology recognises that character

is above all conditioned by socio-historical factors and by *education*. Some Soviet researchers accentuate the "natural" foundation of character by linking with it primarily the formal-dynamic features in human behaviour (see *Temperament*), whereas others note its role in forming general personality "orientation" and its relation to various spheres of social being.

Chiromancy, a variety of pseudoscientific fortune-telling by the configuration of lines, folds and bumps on a person's palms. C. originated in ancient times (dating back to Pythagoras, Galen, Ibn Sina et al.); it is closely associated with astrology and other occult ideas, and is still practiced in some countries. The underlying principle of C., or palmistry, is that man's future is predetermined, and hence his psychology and future life are predestined by the constitutional features imprinted in his palm. Under the currently increased public interest for mysticism in capitalist countries, the book market there is literally piled with all kinds of fortune-telling manuals, including those dealing with C.

Choleric Person, a person with one of the four basic types of *temperament* characterised by a high level of psychic activity, vigorous actions, and dashingly forceful, fast, and impetuous movements. C.P.'s tend to abruptly change their mood, are hot-tempered, impatient, subject to emotional derangements, and sometimes aggressive (see *Behaviour, Aggressive*).

The Russian physiologist Ivan Pavlov assigned C.P's to the highly unbalanced type of personality. In the absence of proper education, insufficient emotional balance may lead to inability to control one's *emotions* in difficult situations.

Climate, Socio-Psychological, the qualitative aspect of *interpersonal relations* which is manifested as the sum total of psychological conditions that facilitate or obstruct productive *joint activities* and the all-round development of the individual in a *group*. Key indicators of a favourable C.,S.P. are: trust and highly demanding attitudes of a group's members towards each other; benevolent and businesslike criticism; free expression of one's opinion in the discussion of questions that concern the whole collective; no pressure on the part of the leaders on their subordinates and the acknowledgement of the leaders' right to make important decisions concerning the group; the members' adequate information about the collective's goals and their solution; satisfaction with affiliation to the collective; high level of emotional involvement and mutual assistance in situations causing *frustration* in any member of the collective; each member's sense of responsibility for the state of affairs in the group. Thus, the character of C.,S.P. depends as a whole on the *level of group development*. It has been established that there exists a positive connection between the state of the C.,S.P. of a well-developed collective and the efficacy of its members' joint activity.

The optimal supervision of its activity and C.,S.P. in any (including work) collective requires special knowledge and skill of its leading members. Special measures are used: scientifically substantiated selection, training and periodical attestation of leading personnel; recruitment of staff of primary collectives bearing in mind their psychological compatibility; use of socio-psychological methods which help cultivate effective mutual understanding and interaction in the members of a collective (see *Socio-Psychological Training*; *Game, Business*). C.,S.P. depends on the *style of leadership*. In his endeavour to optimise C.,S.P. an executive should rely on the most active, conscious and respected members of a collective. The synonyms of the notion C.,S.P. are a moral-psychological climate, psychological climate, and psychological atmosphere in a collective.

Cluster Analysis, a mathematical procedure of a multivariate analysis which makes it possible, on the basis of numerous indices characterising a series of objects (for example, subjects under study), to group them in classes (clusters) in such a way that the objects comprising one class would be more homogeneous, approximating each other, as compared to objects comprising other classes. The distance between objects is calculated on the basis of numerical parameters, which may be expressed in Euclidean metrics (the most widely used), or in other metrics. The method of C.A. is widely used in *psycholinguistics*.

Cognitive Balance, Theories of, a class of theories elaborated in the framework of the cognitive orientation of Western social psychology in the 1950s (see *Cognitive Psychology*) and designed to explain the correlation of the logical and the illogical in a person's behaviour. The main idea of all C.B.,T. consists in that man's cognitive structure cannot be unbalanced, disharmonious; if this occurs, there immediately appears a tendency to change this condition and to re-establish an internal balance of the cognitive system. This idea is represented in different ways in diverse C.B. theories. Fritz Heider's structural balance theory, based on the idea of balance and the idea of attribution (see *Attribution, Causal*), examines the condition of a person's balanced cognitive structure in a situation of perception of another person and the construction of two types of relations: to this person and to an object that is common for the two partners in *communication* (1). Theodore Newcomb's theory of communicative acts propounds the idea that development of *communication* (2) between partners, in the course of which the position of one of them changes thereby re-establishing balance, is a means of overcoming the discomfort engendered by lack of correspondence between a person's attitude towards another person and his attitude to a common object. The basic thesis of Charles Osgood's and Percy Tannenbaum's congruence theory consists in that for the achievement of congruence of cognitive structure a perceiving person simultaneously changes his atti-

tude to the other person and to the object of common attitude. Thus, if the subject's attitude to the other person is positive, but negative with respect to the object they are assessing and in case of a positive attitude of the second subject to the object, the first subject, minimising the "negativity" of his attitude to this object, also minimises the "positivity" of his attitude to the second subject. Here the correspondence (congruence) is re-established by the simultaneous change of these two types of relations, and, in certain cases by changing the attitude's valency. C.B.,T. suffer from a number of methodological errors, which are linked with the general methodological limitations of the cognitive orientation in social psychology. A loose definition of basic terms ("congruence", "incongruence"), the limited possibilities of the models of behaviour interpretation, built on the absolutisation of the "need for correspondence" and excluding the *motivation* of a search for novelty, as well as failure to take into consideration the real contradictions of the social environment as a source of "cognitive dissonance" substantially lessen the value of C.B.,T. However, the rich empirical material accumulated in them can be considered in the framework of another philosophical and methodological approach, which in fact is being implemented in a number of investigations by Soviet psychologists.

Cognitive Complexity, the psychological characterisation of man's cognitive sphere. C.C. reflects the degree of categorial differentiation of an individual's *consciousness*, which facilitates the selective sorting out of impressions of reality, which mediate his activity (see *Categorisation*). C.C. is determined by the quantity of bases for classification, which are used consciously by the subject in differentiating the objects of a certain semantic sphere. A person's consciousness is not homogeneous and in different semantic spheres may be characterised by a different C.C. (for instance, a high C.C. in the sphere of sport and a low one in the sphere of interpersonal perception). An operational criterion for determining C.C. may be the dimension (number of independent factors) of *subjective semantic space*.

Cognitive Dissonance, Theory of, a concept of Western social psychology advanced by the US psychologist Leon Festinger (1957) which explains the influence of man's behaviour on the system of congitive elements (beliefs, opinions, values, intentions, etc.). This theory's point of departure is as follows: dissonance is a negative motivating condition appearing in situations when the subject is simultaneously in possession of two psychologically counterposed "truths" (opinions, notions) concerning an object. The condition of dissonance is subjectively experienced as a feeling of discomfort which the subject endeavours to get rid of either by changing one of dissonant truths or by introducing a new one. Later Festinger described dissonance as the result of insufficient justifica-

tion of choice. Seeking to enhance the justification of a deed, a person either changes his behaviour or changes his attitude towards the objects with which the deed is associated, or minimises the deed's significance for himself and others. In the 1970s, "dissonant effects" were reconsidered by a number of investigators in terms of information and represented as a particular case in the functioning of causal schemes (see *Attribution, Causal*). The main shortcoming of C.D.,T. that is inherent in the entire cognitive orientation is the concentration of research on the subject, his consciousness, and the underestimation of object-oriented activity in which the subject is engaged and which mediates his relationships with surrounding reality (see *Cognitive Psychology*).

Cognitive Map, an *image* of the familiar spatial environment. C.M's are created and modified as a result of a subject's active interaction with the world around him. C.M's of different degree of similarity, "scale" and organisation may be constructed (for instance, a view-map or a road-map, depending on the completeness of representation of spatial relations and the presence of a definite point of departure). Various methods are employed in the study of C.M's—from simple sketches to multivariate *scaling*, making it possible to restore the structure of an image using the results of metric or ordinal evaluation of distances between points on a map. These studies show a tendency to overestimate familiar distances and underestimate unfamiliar ones, straighten slight curves, and approximate the intersections to the perpendiculars. Distortions may also result if the map points belong to different taxonomic units. Specifically, the distance between cities in one country seems less than the distance between cities in different countries, even when they are actually equal.

Cognitive Psychology, a leading orientation in modern Western psychology. C.P. appeared in the late 1950s and early 1960s as a reaction to the denial of the role of internal organisation in psychological processes characteristic of the *behaviourism* holding sway in the USA. Initially, C.P. was designed primarily to study transformations in sensory information from the moment when a *stimulus* reaches the receptor surface to the moment of response (Donald Broadbent, Saul Sternberg). Researchers proceeded from the similarity between the processing of information by man and by computer. Singled out were numerous structural composites (blocks) of cognitive and executive processes, including short- and long-term memory (John Atkinson). This line of research, coming up against serious difficulties in connection with the growing number of structural models of particular psychic processes, led to an understanding of C.P. as an orientation designed to prove the decisive role of knowledge in a subject's *behaviour* (Ulric Neisser). Within this broader approach, C.P. comprises all trends which criticise *behaviourism* and *psychoanalysis* from intellectualistic and mentalistic posi-

tions (Jean Piaget, Jerome Bruner). The organisation of knowledge in the subject's memory, including the correlation of *verbal* and image components in the processes of *memorising* and *thinking* (Gordon Bower, Roger Shepard) becomes the central question. Cognitive theories of *emotions* (Stanley Schachter), individual differences (Hans Eysenck) and personality (George Kelly) are also being intensively evolved. As an attempt at overcoming the crisis of behaviourism, *Gestalt psychology* and other C.P. trends failed to justify the hopes placed on it, for its representatives were unable to unite separate lines of research on a single conceptual basis. From the positions of Soviet psychology, an analysis of the formation and actual functioning of knowledge as a mental *reflection* of reality essentially presupposes a study of the subject's practical and theoretical *activity*, including its highest socialised forms.

Cognitive Style, (1) relatively stable individual peculiarities of a subject's cognitive processes, which find expression in their use of cognitive strategies; (2) the sum total of individual cognitive strategies or types of control established by a choice of specially selected tests. Other types of C.S., such as, *cognitive complexity*, can also serve as an indicator of individual differences in cognitive activity. By stressing exclusively the formal aspects of individual differences in cognitive activity, some Western theories ignore the content of an individual's *motives, value orientations*, which in fact engender and determine this or that C.S. (see *Cognitive Psychology*).

Collective, a group most characteristic of the system of socialist social relationships, with a high level of development, where *interpersonal relations* are mediated by a socially valuable and personally significant content of *joint activities* (see *Level of Group Development*). The elaboration of the socio-psychological problems of C., based on the works of Marx, Engels, and Lenin, the works of Nadezhda Krupskaya, Anton Makarenko and Vassili Sukhomlinsky was begun in the 1960s (Konstantin Platonov, Jevgeny Kuzmin, Lev Umansky, Yekaterina Shorokhova, and others). The formation of a C. is linked with the inclusion of its members in joint socially important activity, which is organised and guided in a special way, whose *goals* are subordinated to the objectives of socialist society, and whose *values* are the values of the socialist way of life. C. creates conditions for the all-round development of *personality*, whose *education* is implemented in C. and through C. The specific socio-psychological characteristics of a C. were experimentally investigated on the basis of the theory of *work-mediated interpersonal relationships*. These are: *group cohesion* as a *value-orientational unity*, *collectivist self-determination*, collectivist identification (see *Identification, Collectivist*), socially valuable character of the motivation of interpersonal choices (see *Interpersonal*

Choices, Motivation of), a high *referentiality* of a C. for its members, objectivity in charging and accepting responsibility for the results of joint activity (see *Attribution, Causal*). These investigations show that the regularities of interpersonal relations in small groups (see *Group, Small*) discovered by the *group dynamics* trend and other trends of Western social psychology are not applicable to C. The socio-psychological regularities of a C. differ in quality from the regularities operating in group with a low level of development. Thus, the degree of effective emotional group identification (see *Identification, Collectivist*) in a diffuse group (see *Group, Diffuse*) is dependent in inverse proportion on its size, and in a C. the salience of this phenomenon does not decrease with the increase of a C. In groups with a low level of development an inverse dependency has been discovered between *efficiency of a group* and the intensity of positive emotional ties within it, while in a C. it is a direct dependency. In incidental social aggregation the likelihood of help being rendered to a victim is minimised with an increase in the number of eyewitnesses (Bibb Latané), while in a C. there is no such effect. The group processes are hierarchicised in a C. and form a multilevel (stratometric) structure, the core of which is joint activities, determined by socially important goals. The first level (stratum) of a C.'s structure is formed by its members' attitudes to the content and values of collective activities, which ensure its cohesion as a value-orientational entity. The second level is interpersonal relations mediated by joint activities (collectivist self-determination, collectivist indentification, etc.). The third level is interpersonal relations mediated by *value orientations* that are not linked with joint activities. The regularities operating at the third level of a C.'s structure do not manifest themselves on the second, and vice versa, and hence the assessments pertaining, for example, to facts experimentally obtained within the framework of the third level, cannot be transferred to the second level or to a C. as a whole. This drives the psychologist who is studying a C.'s level of development to parameters which bring to light its essential, and not incidental (superficial) qualities (see *Collective Formation*).

Collective Formation, the process of turning of a *group* into a *collective*; a specific type of group formation. The key factor in C.F. is the group members' active participation in socially significant *joint activities*, on the basis of which specific *interpersonal relations* are formed in the group. C.F. presupposes group cohesion on the basis of goals of socially significant activity accepted by individuals, the *values*, norms (see *Group Norms*), attitudes, etc. linked with it, and also the formation of *value-orientational unity* and other collectivist relations.

"Collective Representations", a term suggested by the French sociologist Emile Durkheim to designate the components of a system of knowledge,

opinions and behavioural norms originated in social experience. The term was used by Durkheim and his followers to explain the social origin of human *psyche*, which, however, acquired with them a dual interpretation: the social in the structure of consciousness was counterposed to the individual.

Collective, Scientific (in social psychology), a cohesive social unit engaged in joint scientific research in accordance with a common programme. A C.,S. has a complex internal role-functional structure, which includes scientific, scientific-organisational and scientific-administrative roles. The indicators of a C.,S. include: existence of a common research programme; group *cohesion* and internal motivation of the behaviour of its members who fulfil different *roles* in research work; presence of an authoritative leader, capable of organising *joint activities* to implement a given programme. Research of the problems of C.,S. in Soviet social psychology is carried out on the basis of the *programme-role theory of a scientific collective* (see also *Collective*).

Collectivist Self-determination, the selective attitude of *individuals* to the influence of a particular social unit under which they accept some of its influences and reject others, depending on the mediating factors: ideals, activity *goals*, accepted social *values*, norms, etc. (see *Group Norms*). C.S. is an alternative to both conforming (see *Conformity*), and non-conforming or negativist *behaviour* (see *Negativism*). In a developed *collective*, C.S. operates as an indicator of the formation of a collective (see *Level of Group Development*). An experimental investigation of C.S. presupposes: (1) searching for persons who express agreement with the *group*'s opinion; (2) applying to them alleged group pressure, which runs counter to the group's actual opinion, i.e. does not correspond to the norms and values it adheres to. This makes it possible to single out conforming individuals and individuals to whom C.S. is intrinsic.

Common Emotional Experience, "tuning" one's own emotional state to that of another person or social group, when the subject's individual consciousness reflects the attitude of another person or social group to the events happening to him or her. There are two classes of C.E.E.: (1) that which arises from an involuntary emotional *contagion* and overwhelms the subject in case of direct, generally accidental contact with people experiencing certain emotions (for instance, fear or joy that momentarily spreads among an associated group of people). Such C.E.E. is sometimes called direct responsive emotions (see *Empathy*); (2) that which represents in the subject's individual consciousness a corresponding level of *interpersonal relations*, mediated by *joint activities*, common *goals*, norms (see *Group Norms*) and *values* of a given social group (for example, the feeling of joy about the success of a member of the

collective, and the feeling of compassion about his failure). C.E.E. is based on emotional identification, in which the individual puts himself "in another person's shoes" in the process of joint activities (see *Identification, Collectivist*). C.E.E. is particularly salient in the individual's humane attitude towards other people (see *Humaneness*).

Common Sense, the totality of generally accepted and frequently unrealised methods used to explain and appraise observed phenomena of the outside and inner world. C.S. summarises the meaningful fragments of historically accessible experience needed by every person in daily life. The notions relevant to *personal interactions* play a considerable role in C.S., as does information on nature and social relations. In the natural language expressing the content of C.S., there are thousands of words to describe *personality traits*, man's *psychic states*, *motives*, etc. It is natural for modern psychology to display a legitimate interest in C.S., its content and mechanisms, particularly in such fields of socio-psychological research as the attribution theory (see *Attribution, Causal*), the *implicit theory of personality*, the study of social stereotypes, etc. The science of psychology uses the positive elements of experience common to all humanity, and at the same time critically analyses ordinary, spontaneous notions about human personality and behaviour.

Communication (1), a complex process of establishing and developing contacts between people engendered by the need for *joint activities* and involving exchange of information, elaboration of a single strategy of interaction, and *perception* and *understanding* of another person. Correspondingly, three aspects of C. are distinguished, namely, communicative, interactive, and perceptive. Soviet psychologists proceed from the principle that C. and *activity* form an inseparable unity, whereas Western socio-psychological theories usually describe some single aspect of C. and reduce contacts between people either to exchange of information, or to interaction, or to the process of interpersonal perception (see *Perception, Interpersonal*), the relationship of these aspects with joint activities is virtually ignored. Research into the communicative aspect of C. involves revealing the specifics of information exchange processes between people as active subjects, i.e. taking account of relations between the partners, specifically their *attitudes*, *goals* and *intentions*, this leading not merely to a "flow" of information, but also to specification and enhancement of the knowledge, data, and opinions that people exchange. Means of the communicative process are various systems of signs, primarily *speech*, and also the optico-kinetic system of signs (gestures, mimicry, pantomimicry), para- and extralinguistic systems (intonation, non-verbal insertions, e.g. pauses), a system for organising the space and time of communication and, finally, a system of "eye contact". An important feature of the communicative process is the intention of its

participants to influence each other's *behaviour* so as to ensure one's own ideal representation in another's mind (*personalisation*), the prerequisite for this being not simply the use of one language, but similar understanding of the communicative *situation*. The interactive aspect of C. involves elaborating a common interaction strategy. Several types of interaction between people, primarily cooperation and competition, are distinguished. Yet, their abstract definition in simple terms "agreement" or "conflict" results in a schematic description of this process, as is typical of Western social psychology. And though certain results have been achieved along this way of reasoning, which is exemplified by studies of predicting partner's behavioural strategies where elements of the mathematical theory of games were used, the formal nature of the description of the strategies studied, and the fact that it involves mainly analysis of the interaction of dyads, diminishes external validity of the obtained data. One feature of Marxist social psychology is attention to the content of various types of interaction due to its interpretation as a definite method of combining individual efforts in concrete forms of joint activities. The perceptual aspect of C. involves a process wherein an *image* of another person is formed; this is achieved by "deciphering" psychological properties of a person encoded in his physical characteristics and his details of behaviour. The main mechanisms whereby one gets to know another person are *identification* (judging by analogy) and *reflexion* (understanding how other people perceive the subject of cognition). In the course of interpersonal perception and cognition, a number of "*effects*" arise, namely, those of primacy-recency (novelty), and halo. *Stereotyping* and causal attributions (see *Attribution, Causal*) also play an important role. Knowledge of these mechanisms allows one to reveal the psychological content of the process of mutual understanding achieved during C. The correlation of C. with a definite kind of relationship between people also shows in the emotional regulation of the perceptive process, specifically in the phenomenon of *attraction*. Examination of the three aspects of C. in unity is an important condition for optimising people's joint activities and relations. To elaborate means of correcting and optimising C., and to develop communicative *abilities* and *skills*, which are of particular importance for those who are professionally involved in the process of C., e.g. executives, teachers, physicians, etc., are important tasks of social psychology. Among various forms of teaching the art of C., sociopsychological *training*, i.e. the mastering of various forms of C. with the aid of special courses (programmes), plays a significant role.

Communication (2), the semantic aspect of social interaction. Inasmuch as any individual *action* takes place in direct or indirect relations with other people, it includes (along with the physical) a communicative aspect. Actions deliberately designed for their

semantic perception by other people are sometimes called communicative actions. Singled out are a C. process and the acts comprising it. The main functions kf the C. process consist in achieving social unity while preserving the individuality of each of its elements. Realised in separate C. acts are regulatory, informative, emotive and phatic (associated with the establishment of contacts) functions, the first being genetically and structurally the initial one. In the correlation of these functions nominally distinguished are messages: inducing (*belief, suggestion*, order, request); informative (transfer of real or fictitious information); expressive (inducement of emotional experience); phatic (establishment and maintenance of contact). Moreover, communicative processes and acts may also be qualified on the basis of other factors. Thus, according to the type of relations between participants distinguished are: interpersonal, public, and *mass C.*; according to C. means: language (written and oral), paralinguistic (gesture, mimicry, melody), objectified C. (products of industry, fine art, etc.). Study of C. reveals the role of communicative barriers—psychological obstacles on the way of spreading and receiving information that arise for various reasons (*bias*, social, political, moral, professional and other differences between the source of information and its recipient, etc.).

Communication (2), Animal, the transmission of information from one animal to another ("animal language"). C.,A. (as distinct from human) is a closed innate system of signals (sounds, expressive postures, body movements, smells), emitted by one animal and adequately interpreted by another. By its origin and action mechanism (zoopragmatics) methods of C., A. are distinguished according to channels of information transmission (optical, chemical, acoustic, tactile, and others) and degree of ritualisation. The ritualised behavioural components—are genetically fixed signals typical of a species that are executed with exaggerated demonstrativeness (sometimes in the form of a "dialogue"), in a definite sequence in the form of "rituals" ("ceremonies") with a clear-cut informative content. The informative content of communicative actions (zoosemantics) may be related to the sphere of identification (identification of an animal's belonging to a definite species, community, sex, identification of an individual among one's kin, etc.), behavioural motivation (information on the physiological condition of an animal, for instance, hunger, sexual excitation, etc.), relations with the environment (warning of danger or signalling the finding of food, a place for rest, etc.).

Comparative Psychology, a branch of psychology that studies problems relating to *anthropogenesis*, the development of man's *consciousness* and the study of the general and specific elements of human and animal psychological activity (problem of the social and the biological in human behaviour). Materialist C.P. developed against

the background of struggle both against idealist views (subjectivism, *psycho-physical parallelism*) and vulgar-materialist attempts to biologise human behaviour from the standpoint of commonplace evolutionism. C.P. analyses data of *animal psychology* (particularly studies of monkeys) and human psychology to reveal similar psychological elements and common biological facts conditioning animal and human behaviour, their common origin and qualities inherited by man from his animal ancestors. C.P. also studies the fundamental qualitative distinctions of man's *behaviour* and *psyche*, which developed under the influence of socio-historical factors. In this connection, it gives particular attention to premises that gave rise to work *activity*, human society and articulate *speech*. The results of C.P. are important for solving problems of psychology, philosophy, anthropology, and other branches of knowledge. A comparative-ontogenetic study of psyche is essential for learning the regularities of child's mental development. The results of C.P. are also used in medicine (neuropathology, psychiatry, and simulation of pathological conditions on animals).

Comparison, a logical operation in *thinking*. Tasks to compare objects, images or notions are widely used in the psychological studies of the development and impairment of thinking. These studies analyse the mechanisms of comparison used, the process of transition from one frame of reference to another.

Compensation of Mental Functions, a compensation of underdeveloped or impaired psychic functions by the use of safe functions or the reconstruction of partially impaired ones. C. of M.F. makes it possible to involve in its realisation new nerve structures, which previously had not participated in accomplishing the given functions. These structures are united functionally on the basis of fulfilling a common task. According to Pyotr Anokhin's concept, the decisive moment in the creation of a new functional system with C. of M.F. is the evaluation of the results of an organism's (animal's or man's) attempts to remove a defect, which is accomplished thanks to "reverse afferentation". There exist two types of C. of M.F.: intra-systemic, which is accomplished by involving the safe nerve elements of affected structures, and inter-systemic, which is associated with the reconstruction of the functional system and the linking up of new nerve elements from other nerve structures. Both types of C. of M.F. are observed in man. They are very important in cases of overcoming innate or early defects of development. Thus C. of M.F. of the visual *analyser* in a child that is born blind occurs primarily through the development of the sense of touch (i.e. due to the complex activity of the motor and dermo-kinesthetic analysers), which requires a special training.

Complex, a combination of separate psychic processes into a whole that differs from a sum of its elements (see *Systems Principle*). In this sense

the term "C." has been used by many psychologists (see *Cultural-Historical Theory*). A specific interpretation of C. is given in *psychoanalysis*, where C. is seen as a group of psychic processes united by a single *affect*, formed on the basis of deeply-rooted phylogenetic structures (see *Phylogenesis*). In psychoanalysis, C. is an unconscious formation, determining the structure and direction of *consciousness*; one of the tasks of *psychotherapy* is seen in bringing C. to the consciousness of the patient (see *Inferiority Complex; Oedipus Complex*).

Complex Approach to Man, a systematic study of the integral individual-psychological formation of *man* at all stages of his life. According to C.A. to M. principles formulated by Ananyev, the individual development of man takes place on three planes: ontopsychological evolution of psychophysiological functions (characterisation of man as an *individual*); formation of the *activity* and history of man's development as a *subject* of labour (characterisation of man as a subject of activity); man's biography (characterisation of man as a *personality*). Consolidation of the characteristics of an individual, personality and subject of activity produces the psychological uniqueness of man, his individuality. In this connection man's development is examined primarily from the viewpoint of his formation as an individual whole, as the end result of such interaction of "natural" and "cultural" influences, *ontogenesis* and biography whose nature is determined above all by the concrete historical conditions of man's social life, when the structure of social relationships which are realised in *joint activities* with other people and in *communication* (1) pass into the internal structure of the personality. C.A. to M. as to an integral formation, represented in the unity of his natural and social conditions, makes it possible to study his psychology in two directions: subordinational, or hierarchical, according to which the more complex and general special features of a personality subordinate to themselves the more elementary and particular social and psychophysiological features; coordinational, according to which the interaction of diverse psychological features and functions allows their relative autonomy. C.A. to M. has shown the complex but stable interrelation of the characteristics of man as an individual and a personality, revealed the regularity of the stages of their appearance and development, determined the age and sex differences in their functioning, and established an interconnection between sensory, intellectual, mnemonic and other functions and their dependence on man's individual life. C.A. to M. was developed further in the works of Boris Ananyev's pupils and followers.

Comprehension, ability to grasp the *meaning* of something, and the result achieved thereby. C. is studied by a wide range of humanities, viz., psychology, philosophy, history, sociology, history of literature (literary criticism), etc. Hermeneutics (the art and theory of text interpretation) is the special

science on C. One should not identify C. with knowledge, i.e. with a person's ability to master and reproduce the sum of certain evidence whose correctness he does not doubt, since there can be knowledge without C. and C. without knowledge (insight). C. is characterised by a sensation of clear intrinsic coherence and organisation of the examined phenomena. This may be logical ordering of "seeing" cause-and-effect relationships, when facts previously listed mechanically are combined in a single logical system (C. of a proof of a mathematical theorem; C. of some formula or natural law; etc.). A person may also clearly sense the coherence and intelligibility of events without perceiving their logical framework. In this case, the event or phenomenon would come out as something, directed at a certain objective, comparable with the given subject's aims: the person in question would understand the *behaviour*, thoughts, and *motives* of another man; in the same way, C. could involve socio-cultural events, including historical ones, and also literary monuments; again, C. of animal behaviour and natural events could take place in connection with their anthropomorphisation, i.e. when they are judged by analogies from human behaviour. Finally, C. could occur on the basis of *common emotional experience* or *identification* (C. of other person's *emotions*; undifferentiated "C. of man"; C. of ethical and aesthetical phenomena; etc.). The result of C. would be a meaning subjectively unique, but not arbitrary for the individual, since C., in the final count, is determined by socio-cultural factors independent of that individual. The role of *language* in C. (C. of texts and oral communications in natural and artificial languages, for instance has been studied most thoroughly. Identification, *projection*, social perception (see *Perception, Social*), *empathy*, *insight*, *intuition*, and causal attribution (see *Attribution, Causal*) are the psychological mechanisms of human C.

Concentration, a phenomenon opposite to *irradiation*; the ability of nervous processes to limit the sphere of their spread to the initial seat of their appearance. According to Ivan Pavlov, C. is a mechanism for differentiating conditioned *stimuli* and specialising conditioned *reactions*.

Concept, a logical form of *thinking*; the highest level of generalisation characteristic of *verbal-logical thinking*. C. may be concrete and abstract. The most abstract C's are called categories. Psychology studies C.'s development. The assimilation of C's developed by other people should be distinguished from independently developed new C's. In empirical studies of thinking, investigators widely use the following methods: (a) C. definition; (b) C. comparison; (c) C. classification; and (d) C. artificial formation (see *Generalisation*). Psychology also studies the degree of C. systematisation (semantic nets). Special fields of psychology involve investigations of C's about the material world, other

people, and oneself. Distinction is made between commonsensical and scientific C's, and between spontaneous and controlled C. development. Soviet psychologists (Vassili Davydov and Daniil Elkonin) have proved the possibility of conceptual structures forming earlier in children subjected to specialised training than in those who develop them spontaneously.

Conditioned Reflex, a *reflex* that forms with the convergence in time of any initially indifferent *irritant* with the subsequent action of an irritant that causes an *unconditioned reflex*. The term C.R. was suggested by the Russian physiologist Ivan Pavlov. As a result of C.R., the irritant that previously failed to cause a corresponding reaction, begins to induce it to turn into a signalling (conditioned, i.e. showing in specific conditions) irritant. Physiologists distinguish two forms of C.R's, viz. classical, i.e. those obtained by the above-mentioned technique, and instrumental (operational), whose development is unconditionally reinforced only after the arisal of a specific locomotor reaction by the animal in question (see *Operant Conditioning*). The C.R.-forming mechanism was initially understood as making a way between two centres, namely, between conditioned and unconditioned reflexes. At present, scientists accept the idea that the C.R. mechanism is a complex functional system with feedback, i.e. one organised by the principle of a circle, rather than an arc. Animal C.R's form a signalling system, wherein their habitat agents are their signalling irritants. In man, the first signalling system, engendered by environmental effects, is supplemented by the second signalling system, in which the word (which Pavlov called the "signal of signals") acts as a conditioned irritant (see *Signal Systems*).

Conflict, the collision of counterposed, incompatible tendencies in the consciousness of an *individual*, in *interpersonal interaction* or *interpersonal relations* of individuals or groups of people, associated with sharply negative *emotional experiences*. Distinguished in psychology are the following types of C.: 1. Intrapersonal C.—the collision of *motives*, *needs*, *interests*, *drives*, etc. of approximately equal force in one person. 2. Interpersonal C.—a situation of interaction of people when they either pursue incompatible goals, or uphold incompatible *values* and norms, endeavouring to realise them in relations with each other, or simultaneously in an acute competitive struggle seek to attain the same goal, which can be achieved by only one of the conflicting sides. 3. Intergroup C., where the conflicting sides are social *groups* which pursue incompatible goals and by their practical actions obstruct each other. The problem of intrapersonal C. is being investigated in *general* and *pedagogic psychology*, in *pathopsychology* and *psychoanalysis*. One of its first experimental studies was conducted by Alexander Luria. Basing himself on the propositions of Kurt Lewin's "field theory" (see *Topological Psychology*),

he suggested the classification of C's, which consists of three main types: 1. "Approach-approach" C.—a situation when a person has to choose one of two equally attractive alternatives. 2. "Approach-avoidance" C.—one and the same goal is equally attractive and unattractive for the individual making a choice and engenders both positive and negative *emotions*. This kind of C. is sometimes called ambivalent. 3. "Avoidance-avoidance" C.—here an individual is forced to choose one of two equally unattractive alternatives. A special case of an intrapersonal type of C. is the so-called C. of *roles*—social situations in which role actions incompatible with each other are expected from one individual. As for interpersonal C's, two concepts are represented in Western social psychology: motivational and cognitive. In the first, C. is defined as a conscious incompatibility of an individual's *intentions* and interests, while putting the stress on the role of subjective factors in C. The proponents of this concept assert that C. is an inalienable part of social existence, of interaction of individuals and groups. The cognitive approach sees C's bases in the incompatibility of knowledge, notions, cognitive strategies of opposed sides (see *Cognitive Psychology*; *Cognitive Dissonance, Theory of*). It is asserted that C. becomes a reality only if it, as such, is accepted and perceived by the participants (Felix Deutsch). Dominant in both these approaches is an individualistic and pragmatic interpretation of C's nature. Contrary to this, Marxist-oriented social psychology studies C. by relating it to determination of individual behaviour by socio-historical factors and regularities, and treating C. as a kind of reflection of contradictions in the *joint activities* of a group. It has been experimentally established that the presence and nature of C. depends on the *level of group development*. The higher this level is, the lower the degree to which individualistic interests become the cause of intragroup C. Goal-oriented contradictions in the course of joint activities much less often than person-oriented ones lead to a breach of normal interpersonal relations. Thus psychological phenomena which characterise C. can be grasped only in close interconnection with the socio-psychological features of a group as a system of joint activities.

Conformity, a person's tendency to change his *behaviour* under the influence of other people so that it would correspond to the opinion of one's associates, a striving to adapt it to their demands. C. is recorded where there is a conflict between an *individual*'s own opinion and that of the *group* he belongs to, if this conflict is resolved through accord with the group's opinion. The investigation of C. was begun in the works of Solomon Asch, where C. appeared as an individual's tendency to change his opinion under the influence of a group, to adopt the viewpoint expressed by the majority. Experiments were conducted primarily in diffuse groups (see *Group, Diffuse*), in which the subjects jointly solved simple, insigni-

ficant problems. Subsequently, C. was declared a universal regularity of a person's behaviour in diverse social situations. The theoretical interpretations and traditional experimental diagram of pinpointing C. clearly reveal an essentially mechanistic interpretation of the mutual relations of people in society. Critically assessing the results of corresponding studies, Soviet social psychology rejects the theses of C.'s universality and generality as a form of an individual's reaction to the influence of a social community. The fact is that in Asch's and his followers' experiments the value and goal factors acting as a mediator in relations between people were deliberately neutralised. The introduction into a programme of experimental research of a group's *values* and *goals* as a mediating variable revealed an opposition to both conformity and non-conformity (*negativism*) of a special phenomenon inherent in *interpersonal relations* in groups with a high level of development (see *Level of Group Development*)—*collectivist self-determination*, interpreted as a conscious solidarity of an *individual* with a *collective*, acceptance and active support of its goals, values and norms. Collectivist self-determination may coincide with the majority opinion but, if this opinion runs counter to the goals and values of the collective in which social norms have been accumulated, an individual may display his independence of such an opinion.

Conscience, an individual's ability to exercise moral *self-control*; independently formulate moral duties for himself; and demand of himself fulfilment of those duties and self-appraisal of resultant actions. C. is a manifestation of an individual's moral self-consciousness, and manifests itself both as rational awareness of the moral significance of one's actions and as emotional experience, e.g. pangs of remorse.

Consciousness, the supreme level of mental *reflection* of objective reality, inherent in man exclusively by virtue of his socio-historical essence. Empirically, C. is a continually changing totality of sensory *images* and thoughts that arise directly before the subject in his "inner experience", and anticipate his practical activity. C. is studied by several sciences, such as philosophy (the main question of philosophy is that of the relation of C. to being), logic, linguistics, neurophysiology, anthropology, sociology, and ethnography. Psychology studies the origin, structure and functioning of individual C. C. is characterised by *activeness*; intentionality (orientation to some object: general C.—specific C., see *Intention*); power of *reflexion*, *self-observation* (awareness of C. itself); and motivational and value aspects; and different degrees (levels) of clarity. The C. of any individual is unique, but not arbitrary, being conditioned by external factors independent of C. (primarily by the structures of the social system in which the individual exists). The study of C. involves two basic difficulties. First,

all psychological phenomena appear before the individual to an extent to which they are comprehended (including *the unconscious*, which is comprehended either as a result of a special procedure for "bringing something to C.", or, indirectly, in the form of distorted C.). According to evidence obtained in self-observation, C. lacks its own psychological specifics; its only feature is that it confronts the individual (with varying degree of clarity) with different phenomena constituting the essence of specific psychological functions. Hence, C. was either regarded as a general condition (with no quality) for the existence of *psyche* and designated metaphorically ("the light of C.", "the field of C.", "C. is the general master of psychological functions", etc.), or equally improperly identified with some mental function (most often with ***attention*** or ***thinking***). In the first case, concrete study of C. (including experimental study) was absolutely out of the question, and in the second case it was substituted for the study of its corresponding function. All this engendered the view that for scientific psychology C. is complete fiction (William James). The second difficulty stems from the first one: C. (like individual mental functions) cannot be localised in space; but, unlike mental functions, C. (because of its "lack of quality") can neither be "split" in time. Researchers failed to find C. characteristics, by which it could be studied by methods familiar to psychology, such as measuring C. in specific time units or comparing C. thus measured. Kant's idea about the existence of stable, invariant C. structures and schemes superimposed on a continually changing stream of sensory information coming from the *sense organs* and organising it in a definite way was important for a constructive analysis of C. For ages, the problem of C. has been the subject of acute ideological and theoretical debates, in which the materialist approach based on the natural sciences opposed idealist-religious theories. Marx, Engels, and Lenin, who radically revised Hegel's ideas, had a decisive impact on the solution of the problem of C. They stated that C. structures are of sociocultural nature and had formed phylogenetically (see ***Phylogenesis***), in the course of man's history, under the influence of supra-individual social structures (see ***The Superconscious***) that appeared in the course of joint activities (primarily in material production). Soviet psychology developed a general concept about the ontogenetic nature of C. The structures of the individual's C. form in early *ontogenesis* owing to assimilation (see *Interiorisation*) by the child of the elements of activity, such as *communication* (1) with adults. The basic possibility of such assimilation forms in the course of phylogenetic (historical) development. Object-related activity and its attribute, communication, possess the following main properties reflected in its structure: social origin and composition (which is expressed in its social reglamentation and also in its mediation by various implements and signs); involvement of two subjects; and object orientation.

The structure of joint activities engenders the structure of C., correspondingly determining its following main properties: social nature (including mediation by sign, as well as verbal and symbolic structures); capacity for reflexion and inner dialogue; and object-related character.

Constancy (in psychology), relative independence of the perceived characteristics of objects from the dimensions of stimulation of receptor surfaces of *sense organs*. Thus, C. of the perceived size of an object is expressed in the fact that it is perceived as approximately equal in size despite a change of distance from the observer. Similarly, the form of the perceived object remains the same with the change of the visual angle at which it is observed, while the visible colour of the surface is relatively invariable with respect to the spectral composition of light, though it changes the chromatic characteristics of the light reflected by this surface.

Contagion (in social psychology), the process of transmitting an emotional state from one *individual* to another on a psycho-physiological level apart from or supplementary to the semantic impact as such. This may contain a distinctive degree of spontaneity. With feedback, C. is capable of growth due to reciprocal *induction*, acquiring the semblance of a circular *reaction* (see *Crowd*; *Mass Panic*). Such a reaction accompanies spectacular mass actions, public perception of speeches, works of art, etc., and serves as an additional rallying factor; unless it exceeds a certain optimal intensity. Reciprocal C. which is beyond control leads to the disintegration of the formal and informal normative-role structures, and the organised interacting *group* degenerates into a mob.

Contamination (in psychology), incorrect *reproduction* of words by combining syllables forming parts of different words into one word (for instance, instead of the words "winkle" and "twinkle" the word "trinkle" is pronounced). Such transpositions may appear not only within a word, but also in reproducing lists of words; when words from one list are reproduced in another. C. is facilitated by a word's semantic and phonetic proximity. C. is based on proactive and retroactive *interference* phenomena. In pathology, C. is observed in cases of diverse disturbances of *memory (see Amnesia)*. The semantic organisation of material subject to *memorising*, as a rule, obstructs the appearance of C.

Content Analysis (in psychology), a method of revealing and assessing specific characteristics of texts by registering certain units of content, and also the systematic measurement of the frequency and volume of the mention of these units in individual fragments of the text or in the sum total of texts under investigation. C.A. is used primarily for analysing the content of *mass communication* materials, as well as texts of *interviews*, replies to open questions of *questionnaires*, etc. C.A. makes it possible to

reveal the individual psychological characteristics of a communicator, audience, message and their interrelation. C.A., as a scientific method of psychology, is used to obtain information which meets certain criteria of quality (such as objectivity, reliability and *validity*). A notable role in enhancing the quality of C.A. is played by methods of statistical analysis of C.A. data. *Factor analysis*, which helps reveal hidden factors that determine the content of texts, is used especially widely.

Contiguous-Motor Technique, a method for examining affective human *reactions* originally developed by the Soviet psychologist Alexander Luria. Unlike the methods of recording symptoms of affective reactions via changed vegetative functions (respiration, arterial pressure, pulse rate, etc.), C.-M.T. makes it possible to study the reflection of those reactions in speech and motor processes. The subject is successively offered several verbal irritants, and to each word in a row he must give a free *association* with another word, simultaneously pressing a pneumatic wrench with his right- and left-hand digits. The emotional state caused by the word is registered by verbal reactions and impaired motor reactions (changed duration, forms, etc.). Combined verbal and motor symptoms reflect variations in emotional states more amply than the traditionally used vegetative indices.

Control, Social, forms and methods of influence used by society and social *groups* to regulate the *behaviour* of people included in them. C.,S. methods include reward if the behaviour of an individual corresponds to the accepted norms and standards, and punishment, if it deviates from them. C.,S. subjects are the state, social institutions and organisations, and social groups to which the *individual* belongs. Realisation of C.,S. is implemented through sanctions—measures influencing an individual. They may be positive (encouragement, reward, approval, support, etc.) and negative (diverse forms of punishment), official, formal (based on law, administrative and legal acts) and unofficial, informal (based on public opinion). Social psychologists investigate primarily C.,S. forms realised by social groups. Each group or *collective* works out a set of measures influencing its members, methods of persuasion and *suggestion*, encouragement, punishment and coercion exerted on them in the course of *joint activities*. Primarily those individuals whose behaviour, either in the positive or negative sense, deviates significantly from group norms are subjected to C.,S. *Interpersonal interaction* and *interpersonal relations* are simplified and regulated with the help of C.,S., and the group gets an opportunity successfully to fulfil the functions it is charged with (see also: *Norms, Group*).

Conversion, formation of a new *meaning* of a word when it passes into a new *paradigm* of word-changing (for instance, to bake—a bake), or its use in a non-traditional con-

text. C. is sometimes the cause of semantic *barriers* in *communication* (1). The mechanism of C. is used as a means of inventing humorous sayings.

Conviction, a special *personality* trait which determines the general line of all individual *activity* and *value orientations* and regulates individual *consciousness* and *behaviour*. C. takes the form of an individual's attitude towards his actions and *beliefs*, this attitude being due to profound and well-grounded certitude in the truth of the knowledge, principles and ideals that govern the individual. Personal needs, value orientations and social norms realised on the basis of C. are included in the objective forms of activity and determine the individual's behaviour. C. depends on personal experience and the individual's relationships with society, and is based on knowledge, above all ideological knowledge (see *World Outlook*), which, closely interwoven with the *will*, constitute the substance of action *motives* and individual *attitudes*. C. represents the ideological and psychological foundation for fostering in the individual volitional qualities like *courage*, *resoluteness*, tenacity, and loyalty to one's ideals. C. may take the form of profound penetration into the socio-historical processes, and social and moral demands. Such is communist C., the generalised trait of an individual enriched with profound knowledge of Marxist-Leninist theory and with certitude in the truth of its tenets and communist ideals, an individual governed by those ideals in his everyday activities. C. may take perverted forms, when an individual uncritically assimilates ideas and dogmatically accepts certain principles, someone's incontestable authority (see *Bias*).

Corporation, an organised *group* characterised by seclusion, maximum centralisation and *authoritarianism* of leadership, which counterposes itself to other social communities on the basis of its narrow individualistic *interests*. *Interpersonal relations* in C. are mediated by asocial, and often anti-social *value orientations*. The *personalisation* of an individual in C. is achieved at the cost of the *depersonalisation* of other individuals.

Corrective Psychology, a field of *juridical psychology* dealing with conditions and peculiarities of rehabilitating and re-educating law-breakers, primarily in corrective-labour establishments (the intellectual and personal traits of these persons, the process of their *adaptation* to finding themselves in correctional establishments, the *mental state* evoked by imprisonment, the methods of shaping a positive attitude to labour, the moulding of the *attitude* to reform). C.P. examines both the psychology of individual law-breakers and the structure of formal and informal groups in places of confinement, the psychological mechanism of their origins and functioning. The results of research into C.P. are used to elaborate practical psychological and

educational recommendations aimed at resocialising law-breakers and creating in them a psychological readiness for normal, free life, as well as recidivism preventin.

Correlation Analysis (in psychology), a statistical method of evaluating the form, sign and strength of relations between examined characteristics or factors. When determining the forms of a relationship, its linearity or non-linearity are examined (i.e. how y changes depending on the changes in x, and x—on those in y). Also broadly used in psychological investigations is the relation coefficient η, which is calculated in case of the simplest classification. For instance, if the subject possesses certain properties attributed to him it is 1, if he lacks them—0. Essentially φ represents the correlation coefficient for dichotomous data. Among the widely used variants of C.A. in psychology are the calculation of rank order, partial, multiple and other coefficients of correlation.

Courage, a personal quality, which finds expression in an ability to act with determination and purpose in a complex and dangerous situation, control one's impulses, overcome a possible feeling of *fear* and uncertainty, in knowing how to mobilise one's forces to achieve a goal. The highest manifestation of C. is heroism.

Creative Activity, *activity* resulting in novel material and intellectual values. Being essentially a cultural and historical phenomenon, C.A. involves personal and procedural psychological aspects. It implies the presence of individual *abilities*, *motives*, knowledge and *capability* instrumental in creating a product distinguished by novelty, originality and uniqueness. A study of these traits revealed the important role of *imagination* and *intuition*, unconscious components of mental activity, and also of personal needs in *self-actualisation*, i.e. in disclosing and augmenting one's creative potentials. As a process, C.A. was initially examined judging from *self-accounts* by artists and scientists, in which a special role was assigned to illumination, inspiration, insight, and similar states that replace preliminary work of thought. Henry Wallace distinguished the following four stages in C.A.: preparation, incubation, illumination, and verification. He regarded illumination to be the central, specifically creative element, whereby the individual intuitively grasps the sought result. Experimental investigations demonstrated that an intuitive solution arises in object-directed activity accessible to objective analysis. In distinguishing the specifics of the psychological regulation of C.A., Konstantin Stanislavsky, the great Russian actor, producer and director, advanced the idea about the superconsciousness as the supreme concentration of personal spiritual forces in engendering the product of C.A. (see *The Superconscious*). With the development of cybernetics, new attempts were made to simulate C.A. on computers (heuristic programming).

At the same time, the interest towards non-formalisable C.A. was sharply enhanced by assigning formalisable mental operations to technical devices. The dependence thereon of scientific and technological progress (discoveries, inventions, etc.) caused psychologists to concentrate on developing methods for diagnosing creative abilities and stimulating C.A. (see, for instance, *Brain-Storming*). The fact that C.A. is conditioned by the sphere of culture in which it is actualised (production, technology, the arts, science, politics, pedagogy, etc.) makes it necessary to reveal the specificity and essential correlations of the *psychology* of C.A. in each respective sphere.

Creativity Tests, a set of techniques for examining and assessing individual creative *abilities*. The ability to generate original ideas, to deviate from common thinking patterns, and to quickly solve problem situations was distinguished among intellectual abilities as a special aptitude and termed creativity. The study of creative achievement factors is performed in two directions: (1) by analysing the life experience and individual features of the creative personality (personality factors), and (2) by analysing creative thinking and its products (factors of creativity—speed, clarity, flexible thinking, sensitivity towards problems in hand, originality, inventiveness, a constructive approach in solving these problems, etc.). The question whether creativity is an intellect-independent property still remains unresolved. Nor have reliable ways of measuring creativity been found. The fact that the subject has solved a C.T., i.e. fulfilled corresponding tasks, may be taken as evidence of individual creative ability, whereas the fact that he had failed to do so does not yet prove the absence of such an ability. Again, the fact that creativity changes with age and is subject to external effects gives little credibility to existing C.T's as reliable forecasts of successful future creative activity. Correspondingly, practical application of C.T's lacks adequate reliability. Creative accomplishments in all areas of human endeavour require a complex combination of individual abilities and personality traits.

Criminal Psychology, a sphere of *juridical psychology* studying the psychological mechanism of violations of law and the psychology of criminals, problems of formation, structure, functioning and disintegration of criminal *groups*. Soviet C.P. rejects the "born criminal" doctrine, implements the dialectical-materialist principle of development, which determines the study of the entire variety of phenomena, above all social, which influence the formation of the psychological peculiarities of criminals.

Crises, Age, a conventional term for more or less pronounced states of conflict, emerging during the transition from one age period to another. Though not inevitable, C.,A. may take place in a child's psychological development. During these periods contradictions appearing in the process of deve-

opment often acquire a particularly acute form, causing intense *emotional experiences*, and disturbance of mutual understanding in contacts with adults (see *Barrier, Semantic*). The source of C.,A. may be contradictions between the growing physical and spiritual potentialities of a child and earlier formed mutual relations with the people around him and types of activity. The C.,A. acuteness is also influenced by the child's individual characteristics (see *Mental Development*).

Criterion-Oriented Tests, a technique of *psychodiagnosis*, taking account of the subject's performance in solving specific classes of tasks, viz. educational, professional, etc., included in the actions he is to perform. C.-O.T. are designed to establish what classes of tasks (or individual tasks) are accessible to the subject. Accordingly, in devising tests, the investigator would analyse logical and psychological aspects of the tasks to be solved by the subject. These tasks comprise the concepts and terms and their correlations that follow from the test scope, which is to forecast how the subject would fulfil a specific class of tasks (Konstantin Gurevich).

Crowd (mob), an amorphous aggregation of people devoid of distinctly conscious common goals, but interlinked by similarity of emotional state and common object of attention. The basic mechanisms instrumental in the forming of a C. and in the development of its specific qualities are believed to be a circular response (growing and reciprocally directed emotional *contagion*) and *rumours*. Psychologists identify four basic forms of C., viz. (1) occasional C., bound by curiosity towards an unexpectedly occurred event (traffic accident, etc); (2) conventional C., bound by interest for some previously announced mass recreation, e.g. some sporting contest, etc., and ready (often only temporarily) to follow quite diffuse behavioural patterns; (3) expressive C., which jointly shows its common attitude to some event, say, in the form of joy, enthusiasm, indignation, protest, etc.; the extreme form of expressive C. is an ecstatic C., which owing to reciprocal rhythmically growing contagion, reaches a state of general ecstasy (like at some mass religious rites, carnivals, rock concerts, etc.); and (4) acting C., which in turn includes (a) aggressive C., bound with blind hatred for some object (as in lynch trials, beating-up of religious or political opponents, and so on), (b) panic-stricken C., which spontaneously flies from a real or imaginary source of danger (see *Mass Panic*), (c) grabber C., whose individual elements enter into a disordered direct conflict over some material values, e.g. money, vacant seats in departing municipal transport, etc., and (d) rebelling C., in which people share common and just indignation over authorities' actions; not infrequently this type of C. is an attribute of revolutionary upheavals, and timely organisation may elevate its spontaneous mass action to a conscious act of

political struggle. The most important property of a C., namely, its easy convertibility from one type (subtype) into another, is virtually due to the absence of clear goals and also to the absence or diffuse nature of C. structure. Such transformations are often spontaneous; however, knowledge of their regularities and mechanisms makes it possible to either intentionally manipulate C. behaviour for adventurist purposes (something characteristic of reactionary political regimes which often deliberately provoke pogroms, mob law, etc.) or consciously prevent and stop particularly dangerous C. actions.

Cues, objects of living and non-living nature biologically significant for animals (see *Instinctive Behaviour of Animals*).

Cultural-Historical Theory, the theory of a person's psychological development evolved in the 1920s-1930s by the Soviet psychologist Lev Vygotsky with the participation of his pupil Alexei N. Leontiev and Alexander Luria. In formulating the C.-H.T. they critically interpreted the experience of *Gestalt psychology*, the French psychological school (primarily that of Jean Piaget), and also the structural-semiotic orientation in linguistics and literary criticism [Mikhail Bakhtin, Edward Sapir, Ferdinand de Saussure, the "formal school" in literary criticism of the Soviet Society for the Study of Poetic Language (OPOYAZ), and others]. Primary importance attaches to the orientation on Marxist philosophy. In accordance with the C.-H.T., the main regularity of the *ontogenesis* of the mind consists in a child's interiorisation of the structure of his external socio-symbolic (i.e. performed jointly with adults and mediated by *signs*) *activity*. As a result, the former structure of "natural" psychological functions is changed—it becomes mediated by interiorised signs—and psychic functions become "cultural". Overtly this is manifested in that these functions become conscious and voluntary. Thereby interiorisation also acts as *socialisation*. In the course of interiorisation the structure of external activity is transformed and "compressed" in order to be once again transformed and to "extend" in the process of *exteriorisation*, when "outer" social activity is construed on the basis of psychic function. The language sign—word—acts as a universal instrument which changes psychic functions. Outlined here is the possibility of explaining the *verbal* and symbolic (see *Symbol*) character of cognitive processes in man. C.-H.T. on the general psychological level and from other methodological positions advanced problems addressed by the symbolic interactionists (see *Interactionism*) and the supporters of the Sapir and Whorf hypothesis (see *Linguistic Relativity, Hypothesis of*). To check the main propositions of C.-H.T. Lev Vygotsky and his colleagues developed a "method of double stimulation", with the help of which the process of symbol mediation was modelled, and the mechanism of "implantation" of symbols into the structure of psychic functions—*atten-*

tion, memory, thought—was studied. A by-product of C.-H.T., a proposition on "*next development zone*"—a period of time in which there takes place a restructuring of a child's psychic functions under the influence of interiorisation of a structure of a sign-mediated activity performed jointly with adults—is important for the theory of learning. C.-H.T. has been criticised, by Vygotsky's pupils included, for its unwarranted counterposing of "natural" and "cultural" psychic functions; for seeing the mechanism of socialisation as linked primarily with the mastery of sign-symbolic (language) forms; for underestimating the role of man's object-oriented practical activity. The latter argument became a point of departure for Vygotsky's pupils who elaborated the theory of activity structure in psychology. At present C.-H.T. is addressed to in connection with the analysis of processes of *communication* (1), the study of the dialogical nature of a number of cognitive processes (see *Dialogue*), with the use in psychology of the methodology of structural-semiotic studies.

D

Decentration, a mechanism for developing *personality*'s cognitive processes, moulding his/her moral make-up and perfecting his/her communicative skills, which functions on the basis of the *subject*'s ability to perceive another person's point of view (see *Social Perception*). D. is the key notion in genetic *epistemology*, in which it is defined as a mechanism for overcoming *egocentrism* and signifies the processes of transforming the essence of the subject's *images*, *concepts* and *representations* through his acceptance of other people's possible points of view (cognitive prospects). The source of D. is direct or interiorised (see *Interiorisation*) communication with other people (inner dialogue) in the course of which opposing conceptions clash, impelling the individual to change his cognitive position. In their works, Jean Piaget and his followers viewed D. chiefly as a factor of the *socialisation* of a child's *thinking*. Later the link between D. and the successful identification with the *role* of another person, the development level of cognitive *emphathy* and the effectiveness of communicative interaction was demonstrated; the inadequetly developed skill of D. may play a certain role in the appearance of a number of mental disorders, schizophrenia in particular. The level of D. changes noticeably with age: it increases in the period from childhood to adulthood and decreased towars old age. The ability to D. also varies depending on the environment: thus in professional relationships the level of D. is usually higher than in family relationships.

Decision-Making, a volitional act resulting in a sequence of actions leading to achievement of a *goal* through transforming initial informa-

tion in an uncertain situation. D.-M. is the central process at all levels of data processing and psychological control within a system of purposeful *activity*. The main stages of D.-M. involve informational preparation of a decision (data analysis and construction of current images) and D.-M. procedure per se (forming and comparing standard and current images, image correction, choice and construction of standard hypothesis or action programme). The structure of D.-M. comprises the goal, result, ways of attaining it, assessment criteria, and choice rules. The structure and mechanisms of D.-M. are not stably universal at different levels of mental reflection. When transition is made from the perceptual-cognitive level to the speech-and-thought level, the mechanism of trying and choosing hypotheses is replaced by the mechanism of constructing conceptual models. The link between D.-M. and thinking is not unambiguous. In problem solving directly connected with practice (with production management and people, and with the system "man—machine"), D.-M. comes out as a special form of thinking. However, as a stage of intellectual action, D.-M. is the culminating point in solving any *problem*, including cognitive and creative ones. The D.-M. concept has quite a broad application range. In addition to *general psychology*, it covers *psychology of management* (managerial D.-M.), *social psychology* (collective D.-M.) *psychophysiology* (whereby *afferent synthesis* is coverted into an action programme), and also a number of nonpsychological disciplines. *Engineering psychology* regards D.-M. as the main process in operator activity, and optimisation of D.-M. for present criteria as the principal task.

Deduction, the progression of knowledge from the general to the particular, from the premises to their consequences. D. is closely linked to *induction*. Logic views D. as a type of *inference*. *Psychology* studies the development and impairment of deductive reasoning. The progression of knowledge from the general to the particular is analysed in connection with the psychic processes and the process of thinking in general. The analysis of veridity of the premises and their conclusions is an example of an empirical study of deductive reasoning.

Deed, a form of manifestation of a subject *activeness* determined by its socially significant results, for which the *subject* is responsible even in case they had not been intended. The subject's personal responsibility is established on the basis of concrete socio-historical criteria of his potential ability to foresee the consequences of his activity. D. is a concrete form of the joint psychological and sociological description of the subject's activeness and may be used as a unit in the psychological analysis of the *personality*. The *personalisation* of the *individual* within the system of *interpersonal relationships* is provided through D.

Defectology, see *Special Psychology*.

Defence, Psychological, a specific regulatory system of stabilising the personality to remove or minimise the feeling of *anxiety* aroused by the realisation of an existing *conflict*. The function of D.,P. is to "guard" the sphere of *consciousness* against negative emotions traumatic to the personality. In a broad sense, the term "D.,P." is used to denote any behaviour removing psychological discomfort which can form such personality traits as "negativism", result in "false", substituting activities (Bluma Zeigarnik, Boris Bratus) and alter the system of *interpersonal relations*. Understood in a narrow sense, D.,P. leads to a specific alteration of the content of consciousness as a result of the functioning of a number of defence mechanisms: repression, negation, *projection*, *identification*, *regression*, isolation, rationalisation, *conversion*, etc. More than once described in fiction (Fyodor Dostoyevsky, Leo Tolstoy, et. al.), D., P. as a specific psychological phenomenon was initially examined in Freudianism, which interpreted it from a premise of the priority of the unconscious, instinctive (mainly sexual) origins which, as a result of a clash with the "protective mechanisms" of the conscious *Self* (internal "censorship"), are subjected to various transformations (*repression*, *sublimation*, and the like). The problem of a meaningful characterisation of the "targets" of D., P. is resolved differently by representatives of various schools of psychology. Thus, *Neo-Freudianism* recognised the necessity of D., P. when the subject develops a feeling of inferiority, when there is a threat to the value and significance of the personality. The personalist theories (*personalism*) treat D., P. as a consequence of contradictions in the *Self* structure and the final goal of the defence process is concord between the real content of consciousness and the *Self-concept*, etc. The attitude to various psychological concepts is determined by the general critical appraisal of the psychological theories of personality (*psychoanalysis*, *neobehaviourism*, etc.) within which the concepts of the essence and nature of D.,P. have taken shape. Soviet psychology tackles D.,P. problems from the standpoint of the Marxist teaching on personality. D.,P. is a manifestation of the interaction between the subject and the environment in a situation of a possible or real set-back in one's activity, and the realisation of the need to be a full-fledged personality. It is customary to subdivide D.,P. into successful and unsuccessful. Successful D.,P. results in the cessation of anxiety-provoking impulses, while unsuccessful D.,P. does not, thereby causing a constant repetition of these impulses. The specific manner in which the defence mechanisms of both the former and latter categories are dealt with varies according to different authors.

Delinquent, a subject whose *deviant behaviour* in its extreme form is an activity punishable by law.

Delirium, a mental disturbance accompanied by *hallucinations*, incoherent

thought and restlessness. Usually follows the peak of certain infectious diseases and traumas affecting mental functions.

Dementia, a defect of intelligence, a result of underdevelopment or *atrophy* of the *higher mental functions*. Primary D. involves intellectual underdevelopment caused by a hereditary disease, harmful innate factors, or by early childhood deprivation. Secondary D. results from an atrophy of mental functions caused by lack of *exercise*, emotional support and the constant influence of harmful factors (social, age, medicinal disease-related). Depending on the nature of the harmful and degenerative factors, D. may be classified as senile, alchoholic, epileptic, post-traumatic, etc.

Depersonalisation, (1) a change in one's *self-awareness* characterised by a loss of identity and a painful *emotional experience* of alienation from family, colleagues, etc. D. follows mental diseases and *marginal states*. A mild form of D. may occur in mentally healthy people under emotional stress, somatic disorders, etc; (2) any loss by an *individual* of the possibility to be ideally represented in the lives of other people, and of the ability to be a *personality* (see *Personalisation*).

Depression (in psychology) an emotional state of despondency characterised by negative emotional attitudes, a change in the motivation sphere, cognitive impressions and generally passive behaviour. A person in a state of D. experiences painful *emotions*: deep sadness (melancholy), anxiety, despair. Drives, motives and volitional activity (see *Will*) are all but lacking. D. is characterised by self blame for various disasters that occurred in the life of the individual or his relatives. The feeling of guilt for past events and the realisation of his inability to cope with reality are accompanied by a loss of confidence in the future. An individual's *self-appraisal* is extremely low, his sense of time is unrealistic and as far as he is concerned it passes extremely slow. Behaviour in a state of D. is characterised by an overall slow-down, lack of initiative and fatigability; this leads to a sharp fall in productivity. In severe cases of D., suicide is possible. There are functional states of D. that may occur in healthy people within the limits of normal mental functioning, and pathological D. which is one of the basic psychiatric *syndromes*.

Depth Psychology, a number of trends in Western psychology stressing the primary significance in human behaviour of the so-called deep-seated forces of the personality—its drives and attitudes lying beneath the "surface" of consciousness. The better-known trends within D.P. are *Freudianism*, Alfred Adler's *individual psychology*, Carl Jung's analytical psychology, William Mcdougall's *hormic approach*, Ludwig Binswanger's *existential analysis*, and *neo-Freudianism*. Ideas of D.P. exerted a certain impact on medicine. Rejecting introspectionism which identified the mind with its "looks", in the subject's consciousness, D.P. took a stand irreconcilable with the scientific determinist approach: in its interpretation of the

motives of human behaviour D.P. ascribes an active, dynamic role to basically *unconscious* motivation supposedly inherent in the subject's mental dynamic structure. Proceeding from the Marxist doctrine, Lev Vygotsky opposed to both "surface" psychology (studying consciousness through the introspective method, the method of self-observation) and to depth psychology "summit" psychology analysing the correlation between the system of psychological functions (including affects and the will) and the historically changeable cultural forms (see *Cultural-Historical Theory*).

Desire, feeling of want transformed into an active thought about possessing or accomplishing something. Providing an impulse, a D. helps define the *goal* of the future *action* and plan its realisation. As a *motive* of *activity*, a D. is characterised by a fairly clear awareness of the need, including both its objects and the possible ways of fulfilling it.

Detector, a device for detecting certain types of *signals*. In physiology, a D. is an afferent neuron selectively attuned to a certain signal parameter. It is tuned selectively with the participation of a fixed system of links between the neurons and the *receptors* or afferent neurons of a lower level. At an external signal, the maximum excitation is registered by a D. D's of line orientation, depth, colour, direction, velocity of movement, etc. were discovered during experiments with animals. D's are components of an *analyser*.

Determinism (in psychology), a logical and inevitable dependence of psychic phenomena on factors that originate them. D. includes causality as an aggregation of circumstances preceding the effect and causing it, as well as other forms: systems D. (the dependence of separate components of a system on the properties of the whole), retroactive D. (the effect influence its cause), statistical D. (similar causes produce effects that vary in certain limits and subordinate to statistical laws), targeted D. (the *goal* that inveriably forestalls the result determines the process of reaching this result), etc. The development of scientific knowledge on *psyche* is linked with the discovery of various forms of D. For a long period it was oriented towards mechanistic D., which interpreted psychic phenomena as dependent on material factors or analogously to the interaction of objects in mechanism, or to the work of technical devices (machines). Despite the limited nature of the conception (psychic phenomena are only viewed as consequences of external influence), it provided psychology with its basic conceptions on *reflex*, *associations*, *affect*, etc. Biological D., which appeared in the mid-19th century, was devoted to the *behaviour* of living systems (Darwin's theory of the origin of species by natural selection) and established the view on psychology as a function necessary for their survival. While mechanistic D. regarded psyche as by-product (epiphenomenon), it later came to regard it as an inherent component of living systems. When it was established that this ingredient was of an

independent causal significance, there appeared psychological D., which received, however, an inadequate interpretation in the theory of specific psychic causality allegedly opposed to materialistic causality (Wilhelm Wundt). A different approach to psychological D. can be found in the works of natural scientists (Hermann Helmholtz, Franciscus Donders, Ivan Sechenov, and others), who demonstrated that psychic phenomena (*image*, choice reaction, etc.) conditioned by the influence of external factors on the organism, are formed in accordance with laws that differ from physical and biological laws and, on this basis, serve as specific behavioural regulators. The introduction in psychology of the ideas of natural scientific psychological D. led to its being singled out as an independent field of knowledge studying processes dependent on their own laws. A new form of D. was discovered by Marxist-Leninist philosophy, according to which the *activeness* of man's consciousness is rooted in his way of life. This gave rise to the appearance of methodological requisites for the realisation of the principle of D. on the level of the psychological organisation of man's *activity*. Soviet psychology put forth the interpretation of D. as the action of "external causes through internal conditions" (Sergei Rubinstein) and as the action of "the internal through the external" (Alexei N. Leontyev). The Marxist-Leninist provision that while changing the surrounding world, which is independent of man's consciousness, through his objective activity, the *subject* also undergoes changes, gave rise to the basic principle explaining man's psyche from the point of view of D. This activity simultaneously produces the "external" (products of the material and spiritual culture which embody man's existential forces) and the "internal" (man's existential force, formed in the process of their objectification in these products).

Developmental Psychology, a branch of psychology that studies the age dynamics of human *psyche*. D.P. includes child psychology, junior schoolchildren's psychology, teenage psychology, early youth psychology, adult psychology, and old-age psychology (gerontopsychology). D.P. examines the age specifics of mental processes and assimilation of knowledge, and also the age aspects of the *personality*'s development. Given that mental development is achieved in the course of training and education, the subject-matter of D.P. actually coincides with that of *pedagogic psychology*; historically, both have developed virtually simultaneously. The actual unity of D.P. and pedagogic psychology is due to the fact that both study the same object, namely, the human being, who develops and changes in *ontogenesis*. D.P. studies the dynamics and regularities of man's development (see *Age*); while pedagogic psychology examines how man is trained and educated in the course of the teacher's purposeful influence.

Developmental Sensitiveness, optimal course of development of specific mental properties and processes inherent in a definite stage of a child's life. Premature

or delayed training with regard to D.S. may prove inefficient and produce an unfavourable effect on mental development.

Deviant Behaviour, a system of actions or specific actions contradicting the legal or moral norms accepted in society. The basic types of D.B. are crime and unpunishable (legally) amoral behaviour (hard drinking, money-grubbing, loose sex morale, etc.). These forms of D.B. are connected in that delinquent actions are often preceded by habitual immoral behaviour. Studies of D.B. give prominence to investigating its *motives*, causes, and conditions conducive to its development, and also possibilities for preventing and correcting such behaviour. A particularly important role in the origin of D.B. is played by defects in legal and moral consciousness, personal *needs*, the specifics of one's *character* or of the emotional and volitional sphere (see *Will*). As a form of D.B. crime is studied mainly by criminology, which along with the data of other sciences uses the results of psychological research as well. Soviet criminology explains criminal behaviour of an individual by the combined results of wrong development of the *personality* and by some unfavourable *situation*. D.B. which does not collide with the law is also largely determined by educational shortcomings that lead to the forming of more or less stable psychological traits conducive to immoral actions. Initial manifestations of D.B. are sometimes observed in children and teenagers, and are explained by their relatively low level of intellectual development (see *Intellect*), undeveloped personality, negative influence of the family and milieu, and the teenager's dependence on *group* norms and on the *value orientations* accepted in the given group. D.B. in children and teenagers often serves as a means of self-assertion, and expresses their protest against real or alleged injustice on the part of adults. D.B. may go with sufficient knowledge of moral norms, this being indicative of the need to form moral habits in relatively young age. In cases when D.B. is connected with mental diseases, not only pedagogical, but also therapeutic measures would be necessary.

Dialogue an alternate exchange of utterances (in the broad sense an answer in the form of *action*, gesture, or pause is also considered to be an utterance). In Antiquity and in the 17th-19th centuries, D. was a widespread form of philosophical and scientific works (Xenophon, Plato, Galilei, Malebranche, Dioderot, etc.). Studies of D. connected with the analysis of the social mechanisms of *psyche* started in psychology in the 20th century (Lev Vygotsky's *cultural-historical theory*, *interactionism*, *psychoanalysis*, Jean Piaget's theory (see *Geneva School of Genetic Psychology*), the works of Mikhail Bakhtin, and others). Beginning in the 1970s, the psychological aspect of D. between man and electronic computer has become a widely studied field. The interest of psychology in D. stems from the fact that for a child D. (*speech* stirred by an adult and addressed to an adult and lined directly with an ac-

tion) is an initial structural-genetic component of *communication* (1), through language and, later, in the course of a person's life, a universal component of communication through language. Each remark (statement) concerns a certain object (a remark about something) and is of a social nature (addressed to a partner, regulated by a microsocial relationship between partners). Ontogenetically, D. precedes inner speech (see *Speech, Inner*) affecting its structure and functioning and thus man's consciousness in general.

Didactogeny a negative psychological condition of a pupil (depression, depressive *mood, fear, frustration*, etc.) caused by the use of inappropriate teaching methods by an educator (teacher, coach, etc.) and having a negative effect on his *activity* and relationships (see *Interpersonal Relationships*). D. may cause *neuroses*.

Differential Psychology, a field of psychology devoted to psychological differences both between *individuals* and between *groups*, and the reasons and consequences of these differences. D.P. originated with the development of experiments and genetical (see *Methods of Psychogenetics*) and mathematical methods. D.P. took shape under the direct influence of such spheres of practical activity as *pedagogics*, medicine and engineering. It was inaugurated by Francis Galton who worked out a number of methods and devices for studying individual differences and for analysing them from the point of view of statistics (see *Statistical Methods*). The term "D.P." was introduced by the German psychologist William Stern in his work "On the Psychology of Individual Differences" (1900). Alfred Binet, Alexander Lazursky, James Cattell, and others were the first major representatives of the new trend. Tests (see *Testing*) became the basic method of D.P.: first individual tests and later group tests were used for establishing certain intellectual differences, and still later, with the discovery of *projective tests*— for measuring *interests, attitudes* and emotional reactions. Test processing by *factor analysis* methods reveals factors that indicate general properties (parameters, measurements) of the *personality*'s intellect. On this basis, qualitative variations in the psychological traits of individuals are determined. The following theories are popular in Western psychology: (1) Charles Spearman's two-factor theory, according to which any kind of activity implies both a general factor and a specific factor, one only necessary for the given type of activity (for instance, for solving mathematical problems, for composing, etc.); (2) the multiple factor theories (Louis Thurstone, Joy Guilford, and others) which deny the existence of the general factor and argue that there exists a broad range of initial intellectual *abilities* (the speed of *perception*, associative *memory*, etc.). No matter how perfect the tests and their processing, they alone are unable to explain the origins of psychological differences. In D.P. this is a disputable question. During a prolonged period Western psychologists believed that a person's

abilities and *character* were biologically predetermined. Emphasis was placed on heredity and the formation of the organism, while the dependence between individual psychological traits and the environment was ignored. At present new approaches and methods, both experimental and mathematical, are being developed in D.P. Along with intellectual differences between individuals, differences in creative and organisational abilities, in the personality structure and in the motivational spheres are being studied on a broad scale. Much attention is paid to discovering intercorrelations (see *Correlation Analysis*) between psychological traits on the one hand, and physiological and biochemical properties on the other. Much work is being done in this field by Soviet researchers. D.P. is of much importance for solving many practical problems (selecting and training personnel, diagnosing and forecasting the development of certain traits, propensities, abilities, etc.).

Differential Psychophysiology, a field in psychology concerned with individual psychophysiological differences. The term was introduced by the Soviet researcher Vladimir Nebylitsin (1963). In D.P. two methodological approaches are used: (1) comparison of physiological and psychological parameters received in independent experiments, and (2) study of the change of physiological functions in the course of certain *activity*. The conception on the *properties of the nervous system* as applied to man, which is the basic conception of D.P., was developed by Boris Teplov and Vladimir Nebylitsin on the basis of Ivan Pavlov's works on the types of higher nervous activity. D.P. is characterised by: study of certain properties of the nervous system and not the types of nervous system as a whole; acknowledgement of the existence of various characteristics inherent in the same property that form a *syndrome*; separation in the syndrome of a single characteristic corresponding to the definition of the given property; rejection of a value approach. According to Teplov, the psychological properties of the nervous system are manifested in the form of formal-dynamic behavioural characteristics and, firstly, in the subject's *temperament*. As a rule, D.P. regards the neurophysiological level as the initial level: the characteristics of the nervous system are viewed as an independent variable, while psychological characteristics are viewed as a dependent one. However, data is available on the possibility of opposite influences.

Diligence, a positive individual attitude towards work. D. is manifested in personal activeness, initiative, conscientiousness, enthusiasm, and gratification in the very process of work. Psychologically, D. implies that the individual regards work as the main purpose of his life and feels constant need to work. Under socialism, D. acquires a truly moral import to make the individual aware that his work serves the common cause, which becomes his own cause, and in whose results he is personally interested. To foster D. in an individual, he or she must realise the significance and results

of his or her work. A major task of communist education in socialist society is to promote D. in all its members.

Dispersion Analysis (in psychology), a statistical method by which the influence of various factors (properties) on the observed (dependent) variable is analysed. The method was worked out by the biologist Ronald Fisher (1925) and was first used for estimating experiments in plant-growing. Its applicability to experiments in psychology, pedagogics, medicine, etc. was discovered later. During a D.A. the observed property is split up into independent items each characterising the influence of a given factor or their interaction. The subsequent comparison of the items makes it possible to evaluate the significance of each observed factor, as well as their combinations. D.A. is mostly used in experimental psychology to study the influence of certain factors on the subject. Analysis of mean values plays a special role (deviation from these values is called dispersion) (see *Statistical Methods*).

Disposition (or predisposition), the subject's readiness to a behavioural action or to a sequence of actions. In personalistic psychology (William Stern) (see *Personalism*), D. means a causally unstipulated disposition (propensity) to actions, and in Gordon Allport's personality theory—various individual traits (from 18 to 5,000) which form a set of dispositions towards a certain *reaction* of the subject to the environment. In Soviet psychology, the term D. is used chiefly to describe the individual's readiness to evaluate the situation and act in conformance with previous experience (see *Dispositional Theory*).

Dispositional Theory, a conception characterising an individual's social behaviour by the state of his readiness to behave in a certain way. D.T. links the individual's readiness to behave in a certain social situation with the social conditions under which the individual had acted previously and under which a stable predisposition to realise the subject's needs under corresponding appropriate conditions was formed. D.T. was proposed by Vladimir Yadov. It regards *dispositions* as a hierarchy, the top of which is formed by the general orientation of *interests* and the system of *value orientations*, as a result of the influence of general social conditions; its medium levels are made up of a system of generalised *attitudes* towards various social objects and situations; the lower level is composed of situational social attitudes as a readiness to evaluate and act in concrete ("microsocial") conditions of activity. Higher dispositions are more stable, which is in conformity with the individual's activity (stable traits in the way of life of large social units), they actively influence the lower-level dispositions. However, situational social attitudes in contrast to generalised attitudes are relatively independent, which provides for the individual's *adaptation* to changing (unstable) conditions of activity with the preservation of his stable generalised dispositions. The latter regulate the individual's general orientation of social behaviour, while the dispositions of

other levels regulate behaviour in one or another sphere of activity and the orientation of actions in regard to certain social objects and situations. In principle, that disposition which is in greater conformity with the given conditions and the goal of activity on the given scale takes on the leading role. D.T. helps establish ties between sociological and general psychological approaches to the study of the individual's social behaviour.

Distraction, functionally or organically disturbed ability for concentrated, purposeful *activity*. Sometimes, D. arises in tense mental work as a result of one-sided concentration of thought. As a defect of voluntary *attention*, D. may be caused by diverse factors, ranging from *tiredness* and absence of necessary *motivation* to various clinical disorders, often connected with disturbed *thinking*.

Distress, see *Stress*.

Dominant, a temporaly prevailing reflectory system determining the functioning of nervous centres at the given moment and thus conditioning a certain way of behaviour. The D. theory was proposed by the Soviet physiologist Alexei Ukhtomsky. The term and the idea of D. as a general principle governing the functioning of nervous centres was introduced by Ukhtomsky in 1923. As a dominating centre of excitation, D. summarises and accumulates impulses passing to the central *nervous system*, at the same time suppressing the activity of other centres. This explains the systematic and purposeful nature of *behaviour*, which, while being of a reflectory type, is active and not reactive. Ukhtomsky regarded D. as a specific organ and as a functional system instead of a morphologically invariable formation. He placed special emphasis on the "system's history", whose rhythm of functioning reproduces the rhythm of external influences. Owing to these influences, under optimal conditions, the neural resources of the tissue increase rather than decrease. The general direction of the development of the nervous system is aimed at the urgency of the signalisation and control. The nervous system reflects the objects of the environment in their spatiotemporal unity due to the fact that the spatial and temporal parameters of its activity are inseparable. A specific D. inherent in man is the "dominance of another person's face" which Ukhtomsky opposed to the individualistic outlook.

Dreams, subjectively experienced *representations*, mainly of visual modality, which regularly arise during *sleep*, chiefly in the phase of "rapid" sleep. The content and emotional tinge of D., the degree of the subject's "participation" in his own dreams are linked with the intensity of physical changes in "rapid" sleep. The brain cortex *activation* characteristic of "rapid" sleep is relatively more pronounced in the right hemisphere, this corresponding to prevalence in D. of spatial-temporal thinking (see *Functional Asymmetry of the Brain*). This is closely associated with peculiar changes in consciousness in D.: reflec-

tion of objective reality and awareness of oneself as the subject of cognition is disturbed, the individual is not aware of himself as a person seeing D., consequently, he is not critical of what he perceives, even if it is illogical. At the same time, appraisal of oneself as a personality, and also emotions (sense of guilt, shame, etc.), are retained. In a figurative, symbolic form, the content of D. reflects the subject's basic *motives* and *attitudes*. Emotional experience and retention of D. would largely depend on the individual's personality traits and emotional state prior to sleep. A basic function of D. is emotional stabilisation. D. are an important link in the system of psychological defence (see *Defence, Psychological*), they temporarily attenuate the intensity of a psychological conflict and help renew orienting activeness (see *Active-ness, Orienting*). The positive effect of D. on creative processes is associated with this, and also with prevalence of imagery. The functional deficiency of the system "rapid sleep—dreams" is an important factor in the development of neuroses and psychosomatic diseases.

Drive, a mental state which shows the subject's non-differentiated, unawared, or scarcely awared *need*. D. is a transient phenomenon, since the need represented therein either attenuates or is turned into concrete desire, intention, dream, etc. Various trends in *psychoanalysis* give an inadequate interpretation of the importance of D. in human psychology because they generally tend to exaggerate the role of unconscious sexual D. (see *Libido*).

Dynamic Psychology, (1) a field of psychology concerned with the *motivation* of human *behaviour, drives, emotions, conflicts* of *personality*, i.e. the dynamic (motivating, affective) aspect of psychic life as differing from its intellectual aspect; (2) a trend in Western psychology which treats psychic activity from the point of view of its dynamics and *activeness*. Robert Woodworth, an American psychologist and one of the leading representatives of D.P. criticised the view that the behaviour of living organisms is limited to the links between external *irritants* and *reactions* of the organism (see *Behaviourism*) and interpreted the psychic response to an external influence as a complex, changing act whose dynamics integrate the past experience and the variety of present conditions, both internal and external. This integration can neither be explained by the *association* of basic elements, nor by their automatic amalgamation into *complexes*, and occurs owing to psychic activity based on the drive towards a *goal* as the fundamental feature of all living organisms. Due to this drive (*need*) the organism is extremely sensitive to certain *stimuli* and insensitive to others. Therefore, the need not only determines the character of motor reactions, but influences the *perception* of the surrounding world. Proceeding from these theses, the followers of D.P. established a number of important facts in the psychology

of perception, the construction of *movements*, *memory*, the process of reading, etc. In all instances the important role of an attitude, which precedes the psychic process and later regulates its course (dynamics), was revealed. D.P. played a major role in the critique of mechanistic conceptions which ignored the significance of the internal psychological factors of behaviour. Yet D.P. was unable to give a causal explanation of the genesis and development of these factors and their dependence on the socio-historical conditions of the personality's development due to its methodological limitations. Today, D.P. is no longer an independent scientific theory (or school).

Dynamics of the Nervous System, a property of the *nervous system* characterised by easy generation of *excitation* and *inhibition* in the course of forming *conditioned reflexes*. The correlation between the dynamics of excitation and the inhibition of conditioned reflexes is determined as a dynamic balance (see *Equilibrium of Neural Processes*). The speed and degree of success of the individual's adjustment to new conditions depends on D. of N.S. Dynamics as an independent property of the nervous system was discovered by the Soviet researcher Vladimir Nebylitsin (see also *Lability*; *Mobility*).

Dynamic Stereotype, an integral system of habitual conditioned-reflex responses corresponding to the signal, ordinal and temporal characteristics of a set of stimuli (see *Stimulus*). The term was introduced by Ivan Pavlov in 1932. Nervous processes which form D.S. combine as a result of the existent reflex response (functional state) becoming a signal for the next response and being supported by it. In case of a stable stereotype, this sequence of nervous processes is fixated and one of a set of stimuli in different modalities may reproduce the characteristic response of the other stimuli.

E

Echolalia, automatic repetition of another person's words, as observed in some mental disorders (schizophrenia, lesion of frontal lobes, etc.) in both adults and children. E. is also occasionally observed in normal children at an early speech development stage.

Echopraxia, imitative automatic repetition of other people's movements and acts. E. may take various forms: more often, the patient would repeat the relatively simple movements he or she sees directly, e.g. waving, clapping, etc. A form of E. is *echolalia*. E. is observed in schizophrenia, lesion of frontal lobes, and in organic cerebral diseases.

Economic Psychology, a branch of psychology that examines psychological phenomena associated with people's production relationships. Marxist E.P., which is opposed to idealist concepts

designed to psychologise economics, proceeds from the fact that the objective regularities of social development are independent of the will and desires of individuals and, in fact, themselves determine the main features of man's social behaviour and work. E.P. has originated in the USSR at the intersection of psychology (*social psychology, psychology of management*, and *psychology of labour*) and economics at a time when the CPSU set the task to shunt the national economy to intensive development. The main task of E.P. is to develop concepts and practical recommendations that could help further enhance economic efficiency. The major task of E.P. is to reveal the place of man within the structure of productive forces. In this case, man is conventionally regarded as an economic reality, i.e. from the point of view of the resources he possesses as the creator of material and intellectual values directly involved in material production. Other tasks of E.P. are to study reflection in human mind of national, collective-farm, cooperative, public, and personal ownership; the psychological questions of distribution and consumption; human needs and their quantitative and qualitative characteristics; and the regularities governing the origination, development, satisfaction, and reproduction of those needs. E.P. studies the psychological conditions under which the economy would effectively function, and psychological prerequisites for effective planning.

Education, an activity for passing on certain socio-historical experience to new generations; a systematic and purposeful influence that ensures the moulding of an individual, his preparedness for social life and productive labour. In developed socialist society, E. of individuals to impart them a communist *world outlook* and high moral standards, profound ideological convictions, social activeness, a creative attitude to reality and a high culture of labour and behaviour becomes a major social task. It is solved on the basis of scientific principles developed within the system of modern psychological and pedagogical knowledge, assuming its continuous progress. The need to reveal psychological laws governing the moulding of the personality is a major requisite for developing new means, forms and methods for optimising the process of E. In regarding E. as a process achieved in the interaction of those who bring up and those who are brought up, and also of the latter themselves, who are, in effect, not only objects, but also subjects of E., Soviet psychologists study regularities inherent in the moulding of man as a personality under a purposefully organised system of upbringing, and the principles, conditions and specifics of educative work with reference to various age groups. The results of psychological research in revealing specific laws that govern the purposeful moulding of the personality in *ontogenesis*, and orientation to the psychological possibilities of

the individual are designed to help improve the organisation of E.

Ego, see *Freudianism*.

Egocentrism. the individual's inability to alter his original cognitive stance towards a given object, opinion or idea, even in the face of information that runs counter to his past experience, because of focussing on his own interests. The roots of E. lie in the subject's failure to understand that views unlike his own may also exist. E. is overcome by consistently developing personal ability for *decentration*. E. is typical of early childhood, and is, as a rule, overcome by the age of 12-14; a tendency towards intensified E. is observed in old age, too. Concrete studies examine various types of E.: (1) cognitive E., characterising the processes of *perception* and *thinking*; (2) moral E., indicating the subject's inability to perceive the moral foundations of other people's actions; and (3) communicative E., observed in transmission of information by the subject to other persons. In all above-mentioned areas E. may be overcome relatively independently.

Egoism, a subject's *value orientation* characterised by predominance in his life and work of selfish personal interests and needs, regardless of the interests of other individuals and social groups. An egoist treats other people as objects and means for attaining his selfish ends. Development of E. into a dominant personality trait is due to serious defects in education. If family upbringing is objectively directed to reinforcement of exaggerated self-appraisal and *egocentrism*, the child may form a stable value orientation based solely on his own interests, needs, emotions, etc. In mature age, such concentration on one's own ego, self-love and total indifference to the interests of other people or social groups could lead to the subject's *alienation* experienced as isolated existence in a hostile environment. Many psychological and ethical concepts accepted in the West groundlessly regard E. as an innate personality trait that allegedly serves to protect the individual in his life and work. In common usage, E. is the antonym of *altruism* (selflessness). Yet, Marxist theory notes that it would be a mistake to oppose altruism to E.: "The Communists do not oppose egoism to selflessness or selflessness to egoism, nor do they express this contradiction theoretically either in its sentimental or in its highflown ideological form; they rather demonstrate its material source, with which it disappears of itself." (Karl Marx, Frederick Engels, *Collected Works*, Vol. 5, Progress Publishers, Moscow, 1976, p. 247.) To polarise E. and altruism would mean to consistently contrapose I and They, something characteristic of social formations in which exploitation of man by man, and competition of all with all, is essentially inherent. A historically progressive tendency inherent in socialist society is to remove the antagonism between I and They by introducing the unifying principle of We, which implies that what an individual does for others is

equally useful to himself and others, since it is useful to society to which he himself belongs. Thus, if one speaks of the socio-psychological regularities of individual behaviour in a *collective*, the alternative "either E. or altruism" proves imaginary in developed socialist society. A true alternative would be to contrapose to both E. and altruism a behaviour in which the subject would actively regard others as he would himself, and himself as all others in the collective (see *Identification*, *Collectivist*).

Ego Psychology, a trend in *psychoanalysis* that developed in response to orthodox *Freudianism*. Unlike the latter, which regards instincts and drives as the individual's dominant elements, E.P. maintains that the ego (consciousness) plays a more important and independent role than that which Sigmund Freud believed it did. Apart from fighting drives, the ego regulates the individual's relationships with the environment, being a relatively autonomous entity with its own structural characteristics and its own system of defence mechanisms (see *Defence, Psychological*). In this case, the functions of the ego are not directly dependent on drives. In E.P., the "conflict", a key notion for psychoanalysis, is replaced by the notion "dialogue", which implies the individual's "dialogue" with the environment, and original autonomy of the ego. E.P. simplifies the environment or society regarding it solely as the individual's immediate surroundings, and reduces the process of ego development to *adaptation*. This approach fails to account for the truly social regularities in the functioning of the individual. The chief advocates of E.P. are Anna Freud, Eduard von Hartmann, and Erik Erikson.

Effectors, organs or systems of organs that respond (by neurohumoral mechanisms) to actions of external or internal *irritants* and play the role of links which actuate the reflex act. For instance, the eye iris orbicular muscle contracting under light effect would be the effector of pupillary *reflex* (see *Conditioned Reflex*).

Efficiency of a Group (Collective), correspondence of results of socially useful activity of a given group (collective) to the tasks facing it. When applied in *social psychology*, this concept has two definitions: a broader one synonymous with good results or success, and a narrower one synonymous with the input-result ratio. In Western social psychology, certain structurally formal group parameters (size, composition, communication channels, etc.) and certain socio-psychological characteristics (style of leadership, distribution of roles, etc.) were distinguished as basic efficiency factors which were studied for their effects on group productivity. Yet, the resultant evidence proved contradictory and of little use for theoretical generalisation of and practical recommendations for improving group work. Soviet

social psychology suggested a system of efficiency criteria typical of a group having higher level of development. The most important criterion was how the behaviour and results of group-member activity correspond to social expectations that would meet the ideals and supreme values of socialist society.

Efficient Group Emotional Identification, see *Identification, Collectivist.*

Eidetism, the ability of certain individuals (eidetics) to retain and reproduce highly vivid and detailed images of previously perceived objects and scenes. Initial systematic observations of E. date back to the early 20th century when they were made on patients with hearing disorders. The study of E. was the central theme of the Marburg Psychological School (Erich Jaensch, and others), whose adherents arrived at the conclusion that, in preschool and younger school age, E. is a common and, moreover, a normal phenomenon. Evidence obtained chiefly by surveying numerous children was regarded to prove that eidetic images can reproduce in detail topical scenes, and are emotionally experienced as real perceptions. By the mid-1930s, publications by researchers from the Marburg Psychological Institute became openly pseudoscientific, and the Nazis used their classification of different types of E. to substantiate their personality typology. Results of recent studies fail to confirm that E. is widespread. One can speak only of relatively few cases of reliably established eidetic images, e.g. in certain (far from all) outstanding mnemonists, painters, and musicians, in whom E. is often combined with *synaesthesia.*

Emotional Experience (in psychology), (1) any emotionally-tinted state or reflection of reality experienced by an individual and directly represented in his consciousness and appearing to him as an event of his own life; (2) presence of *aspirations, desires* and wishes which in the individual's consciousness represent a process of selection of personal *motives* and *goals* that help him become aware of his personal attitudes to events occurring in his life; (3) a form of *activity* arising when the individual cannot realise the leading motives of his life, when his ideals and *values* collapse, and manifesting itself in a transformation of his inner world aimed at reappraising personal existence. The first, broad meaning of E.E. goes back to *introspective psychology* and accentuates E.E.'s direct relationship to the individual's consciousness. Soviet psychology has overcome the limitations inherent in subjectivist interpretation of consciousness whereby E.E. is mainly reduced to the subject's affective states, to abrupt separation of the knowledge about reality represented in E.E. from the subject's attitude thereto, and to the study of E.E. beyond the actual process of human vital activity. The characteristic of such a psychic fact as E.E. is indicative of its deep-rooted nature in personal life. The second meaning defines the func-

tion of aspirations, desires and wishes in regulating individual activity. These forms of E.E. reflect the struggle of motives and choices of goals in consciousness. A motive subjectively manifesting in E.E. is not present therein, and this is what creates the impression that E.E. itself allegedly induces personal behaviour. In reality, however, E.E. comes out as inner signals whereby the subject becomes aware of the *personalised meaning* of the events taking place and consciously selects possible motives and regulates his behaviour. The third meaning of the term E.E. fixates it as a specific form of activity allowing a person to endure grave events in critical situations, and to see the existential meaningfulness of reassessing values.

Emotionality, a human property characterising the content, quality and dynamics of individual *emotions* and *sentiments*. The content of E. reflects events and situations particularly significant to the individual; it is inseparably connected with the pivotal traits of the personality in question, with its moral potential, viz. orientation of motivations, *world outlook*, *value orientations*, and so on. The qualitative properties of E. characterise the individual's attitude towards the surrounding world and are seen in the valence and modality of dominant emotions. The dynamic properties of E. include the origin, course, and termination of emotional processes and their outward manifestations. E. (along with *activeness*) is a major component of *temperament*.

Emotions, a psychic *reflection* in the form of immediate affective experience of the vital significance of phenomena and situations caused by the relationship of their objective properties to the subject's *needs*. In the course of evolution, E. developed as a means for allowing living creatures to determine the biological significance of the states of their organisms and of environmental effects. The simplest form of E. is the so-called emotional tone of *sensations*, i.e. direct emotional experiences accompanying specific vitally important effects, e.g. gustatory and temperature sensations, which prompt the subject to either retain or eliminate them. *Affects* would develop in extreme conditions, when the subject fails to cope with a situation. With regard to origin, E. represent a form of a species experience: in orienting himself to them, the individual would perform the necessary actions (for instance, avoid danger or procreate), whose purposefulness would remain concealed to him. E. are also important for acquiring individual experience. In this case, they are caused by situations and signals that precede direct E.-inducing effects, and this allows the subject to prepare for them in time. The organism's energy mobilisation (*activation*) level essential for performing the functions of E. is ensured by the vegetative nervous system (see *Nervous System*) in its interaction with *cerebral* structures constituting the central nervous substrate of E. E. involve changes in the activity of respiratory and digestive organs, cardio-vascular

system, endocrine glands, skeletal and smooth muscles, etc. Human E. are the product of socio-historical development and belong to processes of internal regulation of *behaviour*. Subjectively manifesting various *needs*, E. motivate and direct all activity designed to satisfy them. The supreme product of human E. are stable *sentiments* towards objects that correspond to supreme human needs. A strong, absolutely dominant feeling is called *passion*. Besides specific E., events signalling possible changes in an individual's life may also cause variations in the general emotional background—so-called *moods*. Human emotional life is highly variegated: E. manifest the axiological attitude to specific conditions that either facilitate or block activity, e.g. fear or anger; to concrete achievements, e.g. joy or sorrow; to existing or possible future situations, and so on. The nature and dynamics of situational E. are determined both by objective events and the feelings from which they stem (for example, a feeling of pride about a loved one, or a feeling of sorrow about his failures, jealousy, and so on). An attitude towards reflected phenomena—the main property of E.—is represented in their qualitative characteristics (valence—positive, negative; and modality—surprise, joy, repugnance, indignation, anxiety, sorrow, etc.); the dynamics of E. per se involves duration, intensity, etc., and their external manifestation (emotional expression) in mimicry, speech, and pantomime. Human E. vary in degree of awareness. A conflict between realised and unrealised (see *The Unconscious*) E. is most often the underlying cause of neuroses. The development of E. in *ontogenesis* is reflected in differentiation of E. qualities; in complication of the objects that cause emotional responses; and in the development of abilities to regulate E. and their outward manifestations. Human emotional experience would change and grow as a given personality would develop owing to joint emotional experiences (see *Empathy*) arising in *communication* (1) with other people, in perceiving works of art, or under the influence of the mass media. E. play the role of regulators of human communication by influencing the choice of communication partners and by determining specific means and ways of communication. ***Expressive movements*** **are also a means of communication for signalling some socially meaningful event. Though characterised by some common features, they essentially differ depending on the historical time and culture in question.**

Emotions, Information Theory of, a theory, according to which human and higher animal *emotions* are determined by a given actual *need* (by its quality and magnitude) and by individual assessment of the probability (possibility) of satisfying that need on the basis of previously accumulated experience and incoming information. The individual would make that assessment by involuntarily comparing available information on means, time, resources, etc. needed to achieve his *goal* (satisfy that need) with information on the means, time, etc. he had received at the given moment. Ideas regarding the prob-

ability of attaining a goal are essentially subjective, and this, in turn, determines the subjective nature of arising emotions. Yet, in most cases, a subjective assessment affords a more or less correct reflection of the objective probability, since, otherwise, emotions would lose their adaptive significance. Humans can forecast the probability of achieving a goal both at the conscious and unconscious levels of higher nervous activity. Increased probability of achieving one's goal with arrival of new information engenders positive emotions, while reduced probability leads to negative emotional response. E.,I.T., suggested by Pavel Simonov, develops Ivan Pavlov's idea about the *activation* of the cerebral mechanisms of emotions, when the previously formed "internal dynamic stereotype" does not coincide with the changed "external dynamic stereotype". Basing on E.,I.T. psychologists analysed the regularities and mechanisms of emotional *stress* in humans and higher animals, and the role of stress in forming neurotic and psychosomatic disorders; they also developed methods for objectively diagnosing the degree of emotional stress in individuals performing some crucial operation, e.g. aircraft pilots, control tower operators, cosmonauts, etc., and suggested measures for preventing that stress.

Empathy, comprehension of the emotional states of another person through common emotional experience. The term E. was introduced by Edward Titchener, who combined in it various similar ideas about sympathy and Theodor Lipps' concept of imaginative entry into another person's feelings. Psychologists distinguish emotional E. based on *projection* mechanisms (see *Projective Tests*) and imitation of another person's motor and affective responses; cognitive E. based on intellectual processes (comparison, analogy, etc.); and predictive E. regarded as human ability to forecast another individual's affective reactions in concrete situations. The following specific forms of E. are distinguished: common emotional experience, i.e. experiencing by an individual of the same emotional states as those experienced by another person by identifying oneself with him, and sympathy, i.e. emotions experienced by an individual and elicited by another person's feelings. An important characteristic of E. which distinguishes it from other forms of comprehension (taking roles, *decentration*, etc.) is its weakly developed reflexive (see *Reflexion*) aspect, or closure within immediate emotional experience. Empathic abilities of individuals were found to grow with greater life experience. E. is actualised more readily when individuals' behavioural and emotional responses are similar, and also in highly anxious individuals (see *Worry*). In Western psychology, E. is chiefly interpreted as passive contemplative attitude towards another person's states and emotional experience, an attitude that lacks active intervention designed to actively help the latter. At the same time, in a system of *interpersonal relations* characteristic of a developed *collective*, the subject of E. develops a stand of active interference designed to eliminate *frustrations* in other members of the collective (objects of

E.) (see *Identification, Collectivist*).

Empirical Psychology, a term introduced in the 18th century by the German philosopher Christian Wolff to designate a special discipline which, unlike rational psychology with its inference of phenomena from nature and the substance of the *soul* (see *History of Psychology*), describes and studies concrete phenomena of psychic life. Wolff thought that E.P. was designed to observe, classify, and establish the natural correlations of specific facts basing on verification through experience. The basic idea of John Locke's doctrine was that psychological cognition should rely on experience. Yet, he interpreted experience itself in an ambiguous way by dividing it into external and internal experience (see *Sensualism*), and this turned into a premise for the subsequent split of E.P. into materialist (French materialism) and idealist (George Berkeley and David Hume) trends. The resultant mid-19th century E.P. ("experiential school") combined the idea of empirical *observation*, concrete analysis and inductive cognition of mental phenomena with the doctrine that these phenomena have special substance perceivable only through *self-observation*. The "experiential school" programme prepared a transition from speculative interpretation of *psyche* to its experimental study. Subsequently, the polysemy of the term "experience" led to a distinction between the adherents of the natural-science approach to psyche, who believed it involved real processes of consciousness and behaviour controlled by observation and *experiment*, and supporters of "pure" experience, who, as Lenin pointed out in his book *Materialism and Empiriocriticism*, reduced it to subjective phenomena. In the late 19th and early 20th centuries, many psychological schools were under the influence of idealist views on experience.

Engineering Psychology, a branch in psychology investigating the processes and means of informational interaction between man and machine. The scientific and technological revolution transformed the psychological structure of productive labour, whose most important components became the *perception* and processing of operational information, and *decision-making* within a limited span of time. It was under these conditions that E.P. emerged. The basic problems studied in E.P. are: (1) analysis of the *tasks* facing man in the control systems and distribution of functions between man and automatic devices, computers in particular; (2) study of the *joint activities* of operators and *communication* (1) and informational interaction between them; (3) analysis of the psychological *activity* of operators; (4) study of the factors influencing the efficiency, quality, precision, speed and reliability of the *actions* of operators; (5) study of the reception of information by man and of man's sensor "input" (see *Sensory organs*; *Brain*); (6) analysis of decision-making and the processing and storage of information by man, the psychological mechanisms of the regulation of the activities of operators; (7) analysis of

the processes of forming commands and the fulfillment of control functions by man, characteristics of his speech and motor "output"; (8) elaboration of the methods of *psychodiagnosis, professional orientation* and selection of operator-specialists; (9) analysis and optimisation of the processes of teaching operators. In the process of developing E.P. transitions were made from the study of isolated elements of activity to the labour activity as a whole, from examining the operator as a simple link in the management system to treating him as a complex, highly-organised system, from a machine-oriented approach to an anthropocentric approach. In the 1950s, the basic areas of reseach in E.P. were the processes of perceiving the individual components of instruments (pointers, scales, prints); in the 1960s, the processes of perceiving the indicators of instruments as a whole became the subject of study, and in the 1970s, E.P. moved on to examine the interaction between the operator and the multicomponent information systems. At present, the intricate processes of the mutual *adaptation* of man and the operated system are under investigation. This adaptation can take place at different levels depending on the degree of the responsibility entrusted to man and the complexity of the management system. The methods of individual adaptation elaborated in E.P. are also applied in education as an informational means of treating pupils with severe vision anomalies. The introduction of scientific findings of E.P. in the economy is carried out through the engineering and psychological design of the working place, control panels, means and systems of registering information. There are a number of general principles for the synthesis of such systems in E.P.: optimal laconicism, autonomy, structuralism, stress on the elements of control and management and their total correspondence, separation of the detailed and integral information in time and space, individual operative adaptation of the flow of signals to the work pace, etc. E.P. identifies external factors of the complexity of activity, psychological factors (characteristics of the subjective image, the conceptual model of the controlled object) and psychological criteria (the indicators of efficiency, quality, reliability and the intensity of human labour). To identify and quantitatively appraise the psychological factors of the operator's activities, E.P. resorts to a complex system of methods elaborated within different branches of theoretical and applied psychology (algorhythms, construction of general block structures, isolation of *operations* and actions, registration of psychophysiologic indicators and motor components, *observation*, self-account, *interview*, etc.). The introduction of the psychological factors of complexity has made it possible to overcome the limitations of the image of the operator as a "black box" which E.P. inherited in the 1950s-1960s from cybernetics and the *behaviourism* prevalent in bourgeois psychology. Soviet E.P. has formulated many concepts, such as active operator, involvement, the psychological system of activity, algorhythm structures, idealised systems; polysensor interaction, mul-

tilevel mutual adaptation of man and machine, the transformational theory of learning, the psychological factors of complexity, etc. (Boris Lomov, Albert Krylov, Vladimir Shadrikov, Valeri Venda, Vladimir Zinchenko, etc.), (see also *Ergonomics*).

Epiphenomenalism, a doctrine according to which *psyche* plays no active role in the life and activity of man, being but a redundunt product of material (physiological) processes. Dialectical materialism rejects E. and regards mentality as active *reflection* of reality instrumental in regulating vital activity.

Equilibrium of Neural Processes, a property of the *nervous system* showing the correlation between *excitation* and *exhibition*. The Russian physiologist Ivan Pavlov, who introduced the concept "E. of N.P", regarded it as an independent property of the nervous system which, in combination with its other properties (*strength* and *mobility*), forms a type of higher nervous activity. The school of Boris Teplov and Vladimir Nebylitsin regards E. of N.P. as a totality of secondary (derivative) properties of the nervous system, determined by the correlation of excitation and inhibition for each of its primary properties (strength, mobility, *lability*, and *dynamism*), which is a novel interpretation of E. of N.P.

Ergonomics, the general term for a group of sciences concerned with comprehensive study of man in production activity and with optimisation of means and conditions of labour. E. includes the applied sections of *engineering psychology*, psychology, labour physiology and hygienics, anthropology, certain aspects of scientific organisation of labour, technical design, cybernetics, the general systems theory, the theory of automatic control, etc. The subject of E. involves the study and optimisation of man-machine-environment systems. The methodological foundation of E. involves a systems approach allowing to obtain a comprehensive idea on the process of labour and on ways for perfecting that process in order to enhance the efficiency and quality of work, all-round development of the individual, and satisfaction of the creative requirements of working people. Together with engineering psychology, E. assesses the reliability, accuracy and stability of operator's work and distribution of functions between man and machine; studies the effect of psychic tension, fatigue, *stress*, and emotional states on labour efficiency; and develops methods for selecting and training specialists. E. is organically linked with designing new machinery, technological equipment, work places, interiors, transportation means and systems, visual communications, and industrial complexes. Several government industrial standards have been introduced in the USSR as regards E. and ergonomic requirements for man-machine systems, display devices, and work places.

Ethnopsychology, an interdisciplinary branch of knowledge that studies the ethnic aspects of human *psyche;* the national character, regularities of forming and functioning of national self-awareness; ethnic stereotypes; and so on. The creation of a special, essentially idealist discipline called "peoples' psychology" was proclaimed back in 1860 by Moritz Lazarus and Heymann Steinthal, who interpreted the "people's spirit" as a specific, closed formation expressed in the psychic similarity of individuals belonging to a definite nation, and simultaneously as their self-awareness; according to these authors, the substance of E. is to be revealed by comparative study of the language, mythology, ethics, and culture of a given nation. In the early 20th century, these ideas were developed and partially actualised in Wilhelm Wundt's "peoples' sychology". Subsequently, US psychologists virtually identified E. with a neo-Freudian theory (see *Neo-Freudianism)* which tried to infer the properties of national traits from the so-called basic or modal personality, which they, in turn, associated with child education methods typical of a given culture. Contemporary E. is no single entity either topically or methodologically, and the following independent trends may be distinguished therein: (1) comparative studies of the ethnic features of psychophysiology, cognitive processes, memory, emotions, speech, etc., which theoretically and methodologically constitute an inseparable part of corresponding chapters of *general* and *social psychology;* (2) culturological investigations designed to clarify the specifics of the symbolic world and the value orientations of national culture that are inseparably associated with corresponding chapters of ethnography, folklore, study of art, etc.; (3) study of ethnic consciousness and self-awareness that borrow their concepts and methods from corresponding chapters of social psychology which study social attitudes, intergroup relations, etc.; and (4) studies of the ethnic peculiarities of child socialisation, the concepts and methods of these studies being closest to those used in sociology and child psychology (Igor Kon). Since the properties of national culture and those constituting an ethnic community of individuals are not identical, culturological and psychological studies of E. are always marked by certain discrepancies. The abstract and unfounded conclusions of many non-Soviet ethnopsychologists about the psychological features of various nations are essentially harmful, so much so that they can offend national feelings. The crucial issue facing psychologists is the degree of reliability of tests and experimental procedures used in studying ethnic communities. The further development of E., especially its sociopsychological aspects, has a major import for educating the working people in a spirit of internationalist cooperation.

Ethology, the study of the "biology of behaviour", of the general biological foundations and regularities of animal behaviour. The concept and basic principles of E. were formulated in

1895 by Louis Dollo. The tasks of E. are to study the phylogenetic and ontogenetic (see *Phylogenesis, Ontogenesis*) properties of animal behaviour and to reveal the significance of behaviour as a factor of animal evolution and individual and populational *adaptation*. In this case, E. gives main attention to the species-typical (instinctive) components of behaviour. Ethological analysis is based on investigation by biological methods of the integral behavioural act. The postures and movements typical of a given species are described in the form of "ethograms" (systematised "catalogues" of locomotor activity of species). Observations and experiments are used to establish the functional significance of these components, and external and internal behavioural factors are subjected to quantitative and qualitative analysis. E. gives special attention to the biological (ecological) mechanisms of behavioural acts. It also specifies associations between species and other *taxa* with regard to behaviour, and studies animal behavioural aberrations in extreme situations. Its accomplishments are used in livestock breeding and other sectors of the economy, and also in developing the scientific foundations of keeping animals in captivity (see also *Animal Psychology, Instinctive Behaviour of Animals*). Psychologists who adhere to anti-Marxist "human ethology" unconditionally, albeit quite unfoundedly, apply the biological regularities of animal behaviour to human behaviour, including to all fields of social activity (see *Anthropomorphism*).

Euphoria, an elevated joyous mood, a state of complacency and unconcern that runs counter to objective circumstances and is found to involve mimic and general locomotor animation, and psychomotor excitement.

Excitation, a property of living organisms, an active response of excitable tissue to stimulation. E. is the principal function of the *nervous system*. The cells that form the nervous system can conduct E. from the place where it has occurred to other places and neighbouring cells. Thanks to this, nerve cells have acquired the ability to transmit signals from one body structure to another. As a result, E. has come to be the carrier of information about the properties of external stimuli and, together with *inhibition*, a regulator of the activity of all body organs and systems. E. only arises when the intensity of the external stimulus exceeds the absolute excitation threshold (see *Sensation Threshold*) inherent in a given organ. E. is based on physical and chemical processes with which bioelectrical phenomena concomitant with E. and recordable both at the cell level and from the animal or human body surface are related. E. spreading modes are essentially dependent on the type of the nervous system: in the most primitive (diffusive) nervous system, it is conducted uniformly in various directions and gradually attenuates. In the course of evolution, the complication of the nervous system was accompanied by an improvement in the modes of E. transmission to its terminus with no

attenuation, thus allowing E. to accomplish its regulatory function in the organism in an integral way. Together with inhibition, E. constitutes the foundation of the higher nervous activity. Their dynamics fits all behavioural acts, including the very complex ones, and their individual specifics determine the type of the higher nervous activity.

Exercise, repetition of some *action* in order to learn it. In different *training* conditions, E. is either the only procedure within whose framework the individual would actualise all learned elements by comprehending and consolidating the knowledge obtained and by generalising and automatising the action in question, or one of the procedures, in addition to explanation and memorising, which precede E. to secure initial understanding and preliminary consolidation of knowledge relating to the action to be performed. In this case, E. would make comprehension and consolidation, and also generalisation and automatism of the action practices complete, and in the final account this would lead to complete mastery by the individual of that action, and to its transformation (depending on the extent of automatism achieved) into *capability* or *skill*. E. may also be performed immediately after the action is explained, i.e. without preliminary memorising; in this case, consolidation of knowledge would fully take place during E.

Existential Analysis, a method suggested by Ludwig Binswanger for analysing *personality* in the totality and uniqueness of his or her existence. According to E.A., the individual's true being is revealed through absorption in himself or herself so as to select a totally independent "life project". When the individual's openness to the future disappears, he begins to feel himself abandoned, his inner world narrows, his developmental potentialities remain beyond the horizon of vision, and he develops neurosis (see *Psychogenic Disorders*). The meaning of E.A. is seen in helping a neurotic realise that he is free and capable of self-determination. E.A. proceeds from the false philosophical premise that the truly personal in man is only manifest when he is free of causal associations with the material world and his social milieu (see *Depth Psychology*).

Expectations, a system of anticipations and requirements with regard to execution by an individual of intragroup *roles*. E. represent a variety of social sanctions that bring into order the system of relations and interactions within a group. Unlike official prescriptions, functional instructions, and other *behavioural* regulations within a group, E. are non-formalised and not always realised by the individual. The two main aspects of E. are the right to expect that other people would behave in a manner corresponding to their role and in line with other people's E. Psychologists distinguish prescribing E., which determine proper execution by an individual of his role, and predicting E. which determine the

probable nature of that role with account for the subject's individual features in a given situation.

Existential Psychology, see *Humanistic Psychology.*

Experiment (in psychology), one of the principal (alongside *observation)* methods of scientific cognition in general, and of psychological research in particular. Unlike observation, E. involves active intervention in a situation by the researcher, who deliberately manipulates one or several variables (factors) and records the accompanying changes in the behaviour of the object under study. A correctly run E. allows to verify hypotheses on cause-and-effect relations and not only simply to state the correlation between the variables. Psychologists distinguish traditional and factorial designs for conducting E's. In the traditional design only one independent variable is changed, while in the factorial design several variables are altered. The latter's advantage is in allowing to assess the interaction of factors, i.e. the changing influence of one variable depending on the magnitude of another. In this case, statistical processing of E. results would involve *dispersion analysis* (Ronald Fisher). If the examined field is relatively unknown, and a system of hypotheses is absent, psychologists speak of a pilot E. (see *Pilot Study),* whose results could help specify the direction of subsequent analysis. When there are two competing hypotheses, and E. allows to select one of them, psychologists speak of a crucial E. *(experimentum crusis).* A control E. is performed to check certain dependencies. However, the use of E. encounters some fundamental limitations caused by the impossibility in some cases to randomly change the variables. For instance, in *differential psychology* and *personality* studies, most empirical dependencies have the status of correlations (i.e. probability and statistical dependencies) and, as a rule, do not always allow to make conclusions about cause-and-effect relationships. One difficulty in applying E. in psychology is that the researcher quite often finds himself involved in *communication* (1) with the subject, and can unintentionally influence the latter's behaviour. Forming or teaching E's (see *Experiment, Forming)* make up a special category of psychological investigation methods, which allow to purposefully form the specifics of such mental processes as perception, attention, memory, and thinking.

Experimental Psychology, the general term for various studies of mental phenomena by experimental methods. The use of *experiment* played a major role in transforming psychological knowledge and turning psychology from a branch of philosophy into an independent science. E.P. was developed by extensive studies of elementary psychic functions, viz. *sensations, perceptions,* and reaction time, which were started in the mid-19th century. These works were instrumental in generating the idea about the possibili-

ty of creating E.P. as a special discipline as distinguished from philosophy and physiology. The initial scheme for developing E.P. was advanced by Wilhelm Wundt, who subsequently trained many psychologists from different countries, all of whom were later sponsors of various experimental psychological institutions. Whereas internal psychological processes in normal adults, analysed by specially organised *self-observation* (introspection), were initially regarded as the main object of E.P., subsequent experiments were performed on animals (C. Lloyd-Morgan and Edward Thorndike), mentally ill and children. Later, E.P. studied not only the general regularities of mental processes, but also specific varieties of *sensibility*, reaction time, *memory*, and *associations* (Francis Galton and James Cattell). Thus, E.P. gave rise to *differential psychology*, a new trend concerned with distinctions that characterise individuals and groups of people. The accomplishments of E.P. were first purely "academic" and not used in education and in medical treatment. Subsequently, however, they came to be widely applied in different areas of human endeavour, ranging from preschool pedagogy to space exploration. The development of theoretical schemes and specific methods of E.P. was closely connected with the current general progress in theoretical knowledge, notably at the intersection of biological, technical and social sciences.

Experiment, Forming, a method of studying changes in child *psyche* through active influence of the subject by the researcher: used in *developmental* and *pedagogic psychology*. E.,F. is widely used in Soviet psychology to study the specific ways in which the child's personality forms, through joint application of psychological investigations with pedagogical search and planning of most effective forms of teaching and education. Synonyms of E.,F: transforming, creative, educating, and teaching experiment; also method of active forming of psyche.

Expressive, indicative of or capable of reflecting an emotional state.

Expressive Movements, overt expression of *psychic states*, especially those involving emotion, which show in mimicry (E.M. of face muscles), pantomime (E.M. of the whole body), "vocal mimicry", i.e. the dynamic aspect of speech (intonation, timbre, rhythm, vocal vibrato), and expressiveness that may be decisive in interpreting the meaning of utterances. E.M. are often accompanied by changes in the pulse rate, breathing, functioning of the endocrine glands, etc. Man's historical development and the arisal of purely human *sentiments* had a tremendous effect on the development of E.M. In the course of human *communication* (1), E.M. become increasingly numerous and different, assuming the nature of a figurative "language", a specific code for transmitting the multiform tinges of sentiments, assessments, and attitudes to different events and phenomena. E.M. are cor-

rectly interpreted in the course of more or less lengthy communication. Being acts of communication, E.M. turn into a means of conscious influence on people. The forms and use of E.M. depend on the existing system of social relations, and thus become an object of social control by the social environment in accord with the meaning attached to them.

Exteriorisation, a process of generating external actions, utterances, etc. by transforming a number of internal structures which had formed on the basis of *interiorisation* of external human social activity.

Externality—Internality, individual predisposition to specific form of *locus of control*. If a subject largely takes personal *responsibility* for all happenings in his life, explaining them by his own behaviour, character and abilities, this is indicative of internal locus of control. Conversely, if he tends to ascribe them to external factors (the environment, fate, or chance), this is indicative of external locus of control.

Extroversion—Introversion, characteristics of individual psychological differences, whose extreme poles correspond to a *personality*'s dominant *orientation* either towards the world of external objects, or towards one's own subjective world. The concepts of E. and I. were introduced by Carl Jung (see *Analytical Psychology*) to designate two opposite types of personality. The extroverted type directs his interests outwards, and surrounding objects attract his vital interests and "vital energy" like a magnet; in a sense, this leads to his *alienation* from himself, to belittlement of the personal significance of his subjective world. Extroverts are characterised by impulsiveness, initiative, flexibility of behaviour, sociability, and social adaptability (see *Adjustment, Social*). Conversely, introverts direct their interest inwards, towards their own thoughts and feelings, to which they ascribe supreme value; they are also characterised by unsociability, reticence, social passiveness, tendency towards self-analysis, and difficult social adjustment. The problems of E.—I. were studied most intently in factor personality theories (James Cattell, Joy Guilford, Hans Eysenck, and others), which examined them not in terms of personality types, but as a continuous scale showing the quantitative ratio of E.—I. properties in a specific subject. In the most popular Eysenck concept, the E.—I. parameter, combined with the neurotic dimension (emotional-volitional stability vs instability), forms the two main personality dimensions which determine all those properties. The abstract statistical approach underlying this concept created serious difficulties in explaining the causes of numerous E.—I. manifestations, which eclectically combine heterogeneous personality characteristics, ranging from impulsiveness and aggressiveness (see *Behaviour, Aggressive*) to ideological and political attitudes. The Eysenck-established dependence of

E.—I. on the properties of the *nervous system* entailed the reactionary conclusion that psychological and social traits are biologically predetermined. In Soviet psychology, E.—I. manifestations, critically reviewed from Marxist positions, are regarded as properties of *temperament*, i.e. as dynamic (not substantive) characteristics of mental processes (Volf Merlin, Iosif Palei, and others) that serve as premises for development of specific personal qualities.

F

Factor Analysis, a method of multidimensional mathematical statistics applied in studying statistically related features to reveal a definite number of factors concealed from direct observation. Developed in the early 20th century for the needs of psychology (Charles Spearman tried to identify the basic *intellect*-determining factor), F.A. became subsequently widespread in economics, medicine, sociology and other sciences with numerous variables, among which one should distinguish the main ones. F.A. is used not only to establish the correlation between changes in two variables, but also to determine the measure of that correlation and to reveal the underlying factors of those changes. F.A. is particularly productive in the initial stages of research, when there is a need to single out certain preliminary regularities in a given field. This allows to improve the subsequent *experiment* as compared with that involving randomly selected variables. As a method, F.A. also has some weak aspects. For instance it fails to provide an unambivalent mathematical solution of the problem of factor loadings, i.e. the effect of individual factors on changes in different variables.

Fanaticism, extreme loyalty to any idea or cause based on blind faith in the truth of one's own judgements and actions. It is accompanied by intolerance of other beliefs and views, and by inability to critically view oneself and one's own actions (like in religious F.)

Fascination, purposely organised *verbal* effect designed to reduce losses by the *recipients* of semantically meaningful information contained in a communicated message and thereby enhance the possibility of its effect on their behaviour. F. may differ in form. Depending on acoustic organisation, F. intensity may vary from minimal (monotonous announcer's speech) to maximal (specially intoned speech, recitation or singing). Rhythmic organisation of a message is an important factor of F. There is also semantic F., when, under certain conditions, the text of a message proves vitally significant for the recipients to cause a sharp change in their behaviour (for instance, semantic F. was manifested in the "phenomenon of October 30, 1938", when a radio dramatisation of Herbert Well's *The*

War of the Worlds caused a mass panic involving over one million people in the United States. (Fifteen years later, a similar effect was caused by this radio production in Ecuador.) Rumours can also produce semantic F.

Fatigue, a set of subjective emotional experiences concomitant with the development of a state of *tiredness*. F. is characterised by weakness, feebleness, impotence, feelings of physiological discomfort, awareness of one's own disturbed mental processes, loss of interest for one's work, predominant personal motivation to stop all activity, and negative emotional reactions. F. may also arise with protracted monotonous work. Yet, a paradoxical F. unrelated to tiredness may also occur. Another paradoxical possibility is absence of F. in a really exhausted individual.

Fear, an *emotion* arising in situations that threaten the individual's biological or social existence, and directed at the source of real or imaginary danger. Unlike *pain* and other forms of suffering caused by the actual effects of factors dangerous to existence, F. occurs when the individual anticipates them. Depending on the nature of the danger, the intensity and specificity of F. would vary quite significantly to involve either alarm, dread, fright, or horror. If the source of danger is unclear or unrealised by the individual, the resultant sensation is called *anxiety*. Functionally, F. serves to forewarn the subject of an imminent danger, allows him to concentrate his attention on its source, and compels him to seek ways to avoid it. When F. attains the intensity of an *affect* (panicky fear, horror), it may impose behavioural stereotypes (flight, stupor, defensive aggression). F. can educate people socially. For example, F. of condemnation is used by society to regulate individual behaviour. Given that in modern society the individual is protected by judicial and other social institutes, his increased tendency towards F. lacks its adaptive significance and is traditionally viewed in a negative light. Fear reactions are relatively stable and may persist even when the individual realises that they are absurd. Hence when the psychiatrist trains a person to make him or her fear-resistant, this is usually intended to make this person learn how to exercise self-control in case of F., not to rid him or her of F. Inadequate fearful reactions are observed in various mental disturbances (see *Phobias*).

Field (in psychology), a set of the present ("here and now") stimulants of individual activity emotionally experienced by the subject. The F. concept was developed within the framework of *Gestalt psychology* and *topological psychology* and was interpreted in accord with the principles of these two schools of bourgeois psychology. By means of the F. concept, one would characterise individual behaviour in a given situation depending on the subject's orientation (see *Field Independence*).

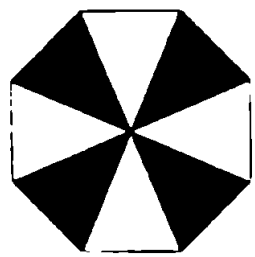
Field Independence, a concept designating preferential orientation of the

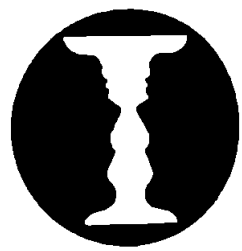
individual to inner structuring standards of outward impressions, when inadequate forms of environment reflection are imposed thereon. F.I. embraces a wide range of events, from those involving stability and adequacy of perception of the outer world in conditions that hamper such perception to manifestation of the individual's autonomy under suggestive (see *Suggestion*) influence of a *group* or *crowd* (see *Mass Panic*; *Contagion*). Field-dependent behaviour is one in which the subject responds impulsively to stimuli possessing motivational force ("valence") beyond the influence of a predetermined objective. Field-independent behaviour manifests itself in basic human orientation to one's own purpose and in disregard of an existing situation.

Field Research, study of social phenomena or animal group behaviour in normal conditions. F.R. is primarily the study of space-limited group of individuals (people or animals) within their daily activity, specifically human collectives in their social context; flocks of animals in natural habitats; etc. F.R. was initially connected with ethnographic studies describing events which were difficult to forecast and systematise beforehand. The main purpose of F.R. is to reveal unknown processes and their determining factors. Depending on its tasks and means, there are three types of F.R., viz., exploring F.R. (see *Pilot Study*), which is essentially descriptive in nature; diagnostic F.R., which is aimed at solving practical problems; and experimental F.R. (see *Experiment*), which involves verification of hypotheses. A major condition for F.R. is to ensure the observer's presence that does not distort the natural course of the observed process.

Figure and Background, a distinction that originated in the fine arts and was subsequently introduced into psychology in the early 1900s by the Danish psychologist Edward Rubin, who termed as figure the closed, protruding and arresting section of the "substantive" phenomenal field. The background surrounds the figure to appear to be its uninterrupted continuation. Separation of F. and B. may be shown by the following two-figure illustration whose individual parts may be perceived both as figure and background:







F. and B. differ not only descriptively, but also functionally. For instance, in visual perception, the background performs the function of a reference frame in relation to which the colour, spatial and other figure characteristics are assessed. The correlation of F. and B. underlies various types of constancy.

First Signalling System, see *Signalling Systems*.

Forensic Psychological Expert Examination, a major form of application of special psychological knowledge in criminal proceedings. It is performed on the investigator or court order in conformity with the code of criminal proceedings in relation to mentally sane accused, witnesses, and victims. The general subject of F.P.E.E. concerns mental activity specifics whose study is important for establishing the truth in criminal cases. Specific F.P.E.E. inquiries may be performed to diagnose the presence or absence of *affect* in the accused at the moment of crime, the ability of witnesses and victims (primarily children) to correctly perceive important circumstances for the case in question, and to testify correctly thereon; and so on.

Forensic Psychology, a branch of *juridical psychology* that studies problems pertaining to legal proceedings: the psychology of judges, investigators, and other law-enforcement officers and lawyers, the essence of their professional activities, and their selection and training methods; the psychology of the accused, witnesses, and victims; the psychology of witness testimony and the psychological principles of investigatory and judicial actions (interrogation, confrontation, etc.); the psychology of inquiry; and the methodology and techniques of *forensic psychological expert examination*.

Forgetting, a process characterised by a gradual decrease in the ability to recall and reproduce the learned material. F. was first studied by Hermann Ebbinghaus (1885) who established experimentally the temporal dependence of retaining in memory senseless *verbal* material. Subsequent studies have shown that the rate of F. depends on the following factors: the volume of memorised material, its content and degree of comprehension, the similarity of memorised and interfering (see *Interference*) material, the significance of memorised material and its involvement in the *subject's activity*, etc. The inability to recall some material does not mean that it is forgotten completely. What is forgotten is the concrete form of material, but its content significant for the subject undergoes qualitative changes and is included in the subject's experience. According to the interference theories, F. is a consequence of the erasure of memory traces under the impact of proactive and retroactive interference. According to Richard Atkinson (1968), long-term memory is eternal, and F. occurs in the following way: a key to recalling is the choice of test (prompting) information which activates the corresponding retrieving sets in the long-term memory storage (see *Memory, Long-Term*); an inadequate choice of such information and its subsequent unsuccessful reproduction leads to the F. effect (this happens because the task of recalling a big volume of material involves big retrieving sets). But this theory is vulnerable, too, because it does not explain all F. phenomena (see *Sequen-*

ce Effect). In Soviet psychology, prospects for developing a psychological theory of memory which would explain F. phenomena are connected with the concept of memory as an action per se, rather than with the traditional doctrine of memory traces (*Memory*; *Memorising*).

Freudianism, a trend named after the Austrian psychologist Sigmund Freud that explains personality's development and structure by irrational mental factors antagonistic to consciousness and uses *psychotherapy* based thereon. Having originated as a conception for explaining and treating neuroses (see *Psychogenic Disorders*), F. subsequently developed into a general teaching about man, society and culture to acquire a major influence in the capitalist world. The core of F. is in the idea of perpetual hidden controversy between the unconscious psychic forces (the main one being sexual urge—*libido*) concealed deep inside the individual, and the need to survive in a social medium hostile to that individual. The social bans that create "censorship" of consciousness inflict a psychic trauma and suppress the energy of unconscious urges which break through in the form of neurotic symptoms, *dreams*, mistaken actions (oral or written slips), forgetting of the unpleasant, etc. F. distinguishes the following three components in the structure of personality: id (it), ego (I) and superego (super-I). Id is the focus of blind instincts, either sexual, or aggressive, which tend towards instant gratification, irrespective of the subject's relationship with external reality. Ego perceives information about the surrounding world and the body's condition, retains this information in *memory* and regulates the individual's responses in the interest of self-preservation, helping him adapt to external reality. Superego involves moral standards, bans and encouragements assimilated by the individual, mostly unconsciously, in the course of education, chiefly from his parents. Arising from a mechanism whereby the child identifies himself with an adult (father), id manifests itself in the form of conscience and may cause feelings of fear and guilt. Inasmuch as the demands of the id, superego and external reality (to which the individual is compelled to adapt) on the ego are incompatible, the latter inevitably finds itself in a conflicting situation. This creates unbearable stress, from which the individual saves himself by means of "defence mechanisms", viz. *repression*, rationalisation, *sublimation*, and regression. Alleging that childhood unambiguously determines the character and attitudes of an adult individual, F. ascribes childhood an important role in the forming of motivations. F. sees the task of psychotherapy in revealing damaging emotional experiences and in liberating the individual of them through *catharsis*, awareness of repressed urges, and comprehension of the causes of neurotic symptoms. To that end, F. uses dream analyses, the "free associations" method, etc. In the course of psychotherapy, the physician encounters the patient's resistance, which is subsequently replaced by emotionally positive

attitudes towards the former, i.e. by *transference*, owing to which the patient's ego grows in strength to make him realise the source of his conflicts and outlive them in a harmless form. Freud introduced several important problems into psychology, namely, unconscious motivation, correlation of normal and pathological mental phenomena, the psychological defence, the role of the sex, the effect of child traumas on adult behaviour, a complex structure of personality, and contradictions and conflicts in the subject's psychological structure. Yet, in interpreting these issues, Freud advanced scientifically unacceptable biologistic tenets which claim that psyche is subordinate to instinctive asocial urges, that libido is omnipotent (pansexualism), and that the conscious and the unconscious are antagonistic. Thus, Freud advanced an inadequately interpreted psychological factor as a determinant of both organic and social life. By subordinating the history and culture of human society to that factor, F. mystified both, having thus taken on a reactionary ideological purport.

Freudo-Marxism, a trend in psychoanalysis that tries to combine *Freudianism* and Marxism by arguing that some tenets in both doctrines are allegedly common. F.-M. thus distorts the essence of Marxism, on the one hand, and tends to strengthen Freudianism at the expense of Marx's prestigious doctrine, on the other. The first representative of F.-M. was Wilhelm Reich, who maintained that the proletariat's revolutionary struggle must be complemented with a struggle for a new policy in sexual education. Gerbert Marcuse, Reich's follower, alleged that the essence of capitalist exploitation was to restrict human urges, including perversions. At the same time, he reduced revolutionary struggle to a battle for liberating instincts. According to Marcuse, revolutionary forces are society's "outcasts" to which he indiscriminately assigned students, the unemployed, lumpen proletarians, and national minorities. These views made Marcuse the ideologist of leftist and anarchic elements among young people. Erich Fromm's claims that Freudianism is affined to Marxism deserve particular attention. Manipulating with Marx's ideas, and not infrequently substituting their essence for his own views (see *Neo-Freudianism*), Fromm tried to create the impression that his theory was close to Marxism, continuing at the same time to criticise capitalism from abstract humanistic positions. All F.-M. trends are scientifically unsound.

Friendship, a type of steady individual selective *interpersonal relationships* characterised by mutual attachment of its members, intensification of *affiliation* processes and mutual expectance of reciprocal feelings and preferences. The development of F. presupposes adherence to its unwritten "code" which affirms the need for mutual understanding, frankness and openness in respect to each other, as well as active mutual aid and mutual interest in the affairs and emotional experiences of each other, sincerity and selflessness. Grave

breaches of the F. "code" result either in a cessation of the relationship or the establishment of superficial F. or even to F. resulting in its opposite—hatred. The opposition of F.—despite its intimate nature—to business, formal and other relations is of a relative nature. F. depends on common goals, interests, ideals and intentions. It necessarily reveals *value orientational unity*. The wealth of relationships within F. is determined by the social value of the activity to which the friends have devoted themselves, to those ideas and interests on which their union is based. The functions of F., its patterns of development, etc. change significantly from one stage of the life cycle to another and are sex-specific. The intensity of F. reaches its peak during adolescence, youth and early adulthood when relationships with friends are of extreme importance, when the number of meetings is greatest as is the time spent together. Relations between friends are characterised by deep emotional contact. In view of the fact that girls experience a need for intimacy at an earlier age as compared with boys, they progress from childhood F. to adolescent F. at an earlier age. Marriage and other changes brought about by adulthood change the nature of F. and friendly relations cease to be unique, their significance lessens and the functions of F. change. Nevertheless, even at later stages of the life cycle it remains a major factor in forming the personality and supporting the *self-concept*. Since F. is a social phenomenon, its analysis by solely psychological means is obviously inadequate. F. is studied by sociologists, philosophers, ethnographers and other researchers.

Frustration, a psychological state arising because of some real or imaginary obstacle to achieving a *goal*. It manifests itself in sensations of oppressive stress, *worry*, dispair, anger, etc. F. intensity would depend on the significance of the blocked behaviour and the goal's subjective "proximity". Defence reactions in F. take the form of aggressiveness (see *Behaviour, Aggressive*), avoidance of difficult situations (including transfer of actions to an imaginary plane), declined complexity of behaviour (sometimes to a level of deep regression), since increased stress inhibits finer and more complex action-regulating structures. F. may lead to character changes, uncertainty of oneself, and fixation of rigid forms of behaviour (see *Rigidity*). Quite often, F. results in *neuroses*. Hence, development of individual *tolerance* (resistance) to F. is of particular significance.

Functional Asymmetry of the Brain, characterises distribution of mental functions between the two cerebral hemispheres. It has been established that the left hemisphere operates with verbal-sign information in its *expressive* form and has the function of reading and counting, whereas the right hemisphere operates with *images* and has the function of spatial orientation, differentiation of musical tones, melodies, and non-verbal sounds, identification of complex objects (human faces), and production of *dreams*. The

basic difference between the two hemispheres lies not so much in the peculiarities of the material (verbal signs or images) as in the mode of information arrangement and processing, that is, type of *thinking*. While both hemispheres can perceive and process words and images (the right hemisphere being capable of perceiving expressive speech in the minimal degree), the processes proceed differently. The "left-hemisphere" type of thinking is discrete and analytical, inasmuch as it effects an array of consecutive operations producing a logically non-contradictory *analysis* of objects and phenomena by a certain number of features. Thus is produced an inherently integral model of the world that can be fixed and expressed through words or other conventional *signs*, which is a relevant condition for *communication* (1). The "right-hemisphere" (spatial-imaginative) type of thinking is simultaneous and synthetic, inasmuch as it makes possible to "grasp" at once all the properties of the object in their interconnection and interaction with the properties of other objects, which provides for integrity of perception. Due to the interaction of images, they acquire multiplicity of meaning. This multiplicity underlies creativity, on the one hand, and complicates the logical expression of interconnections between objects and phenomena and can even hamper their perception, on the other. The hemispheres function in close conjunction, each contributing to the functioning of the brain as a whole. F.A. of B. is only characteristic of man; while its development is genetically inherited, F.A. of B. (just as *speech*) acquires final shape in communication. The "left-hemisphere" or "right-hemisphere" type of thinking may prevail depending on obtaining conditions, this to a significant extent determining the subject's mental qualities.

Functional Psychology, a trend that studies *consciousness* processes from the viewpoint of their functions in adapting the body to the environment. F.P. developed under the influence of the theory of evolution (Charles Darwin and Herbert Spencer) and in connection with the requirements of social practice, which made it necessary to switch over from the sterile elemental analysis of consciousness in the *structural psychology* of Wilhelm Wundt and Edward Titchener to the study of the functional role of consciousness in solving problems vitally important to the individual. F.P. involved several trends. In Europe, Theodule Ribot (France), Nikolai Lange (Russia), Edward Claparède (Switzerland) adhered to a natural-science interpretation of mental functions, and Carl Stumpf and representatives of the Würzburg School (Germany) to an idealistic interpretation. The US version of F.P. goes back to William James and is represented by the Chicago School (John Dewey, James Angell, and Harvey Carr) and Columbia School (Robert Woodworth), which regarded psychology as a science dealing with the functions (or "activities") of consciousness in their relationship to organic needs and in connection with the problem of organism's effective

adjustment to a changing natural and social environment. This approach essentially expanded the sphere of psychology, which subsequently embraced not only consciousness, but also behaviour (adaptational actions), the motives of that behaviour, individual differences between people, the mechanisms of learning, and other problems that drew psychology closer to practice. The supporters of this trend substantially contributed to *experimental psychology*. Yet, the weakness of their theoretical stand, dualism inherent in their understanding of the correlation of somatic and mental functions, and their teleological view of consciousness as a purposefully acting substance resulted in a loss of scientific influence by F.P. In the 1920s, American F.P. yielded its positions to *behaviourism*.

Functional State of the Central Nervous System, the background or level of the *activation* of the *nervous system* at which animal or human behavioural acts are effected. F.S. of C.N.S. is the general, integral brain function characteristic that designates the general condition of a host of *brain* structures. F.S. of C.N.S. depends on the nature and specifics of the activity against whose background it is actualised; significance of motivations to fulfill specific activity; the sensory load, which may be either high or sharply reduced under *sensory deprivation*; the initial level of the sensory load as a reflection of previous activity; the specifics of the subject's nervous system; and the effects produced by pharmacological, chemical, electrical, and other stimuli, which are beyond the organism's habitat. F.S. of C.N.S. is assessed indirectly either by behavioural manifestations to which various levels of *wakefulness* would correspond, or by changed efficacy of activity.

Functional Systems, Theory of, a concept developed by Soviet physiologist Pyotr Anokhin, according to which various physiological processes take place in an integral organism interacting with the environment. F.S.,T. is based on the idea that the function as such represents the result of organism's adjustment in interaction with the environment. The functional system involves specifically organised activity of various elements, leading to a corresponding useful result. The functional system forms in the course of trials and errors (both genetically and in individual training) and undergoes corresponding selection. Correlation of recent organisms with the environment represents a hierarchy of functional systems that became increasingly complex in the course of evolution. According to F.S.,T., behaviour (active organism-environment interaction) is based on qualitatively specific systems processes, or on processes whereby elements are organised into a system; behaviour is purposeful, for it is directed by leading reflection of reality. The body's relations with the environment are of a cyclic nature: the interval between the "*stimulus*" and the beginning of the "*reaction*" is distinguished by comparing the stimulus characteristics with the *acceptor* of previous *action results*, and by *afferent synthesis*,

basing on which the organism determines its subsequent action, i.e. chooses its goal and programme. The start of locomotor activity signifies actualisation of an action under the decisive influence of the goal (or of the acceptor of the action results); the achieved results would also be compared with the acceptor of the action results to initiate the next cycle of active body-environment correlation. The idea that behavioural neuromechanisms represent a functional system was suggested by the Russian physiologist Ivan Sechenov and further developed by Alexei Ukhtomsky. Nikolai Bernstein's physiology of activeness contains similar concepts.

G

Galvanic Skin Response (GSR), an indicator of the skin's electrical conductivity. It possesses both physical and tonic forms. In the first case GSR is a component of an *orientating reflex*, arising in response to a new *stimulus* and extinguishing with its repetition. The tonic form of GSR characterises slow changes in skin conductivity, which develop, for instance, with *tiredness*.

Game, Business, a form of reconstructing the object and social content of professional activity, the modelling of the systems of relations characteristic of a particular type of practice. G.,B. represents the unfolding of a particular (game) activity by the participants in an imitation model recreating the conditions and dynamics of production. Study, research, managerial and examination G's,B. can be discerned, depending on the type of human practice reconstructed in the game and the goals pursued by the participants. The origin of G.,B. can be traced to the magic rites of primitive people; its more recent predecessor was a military game conceived in the 17th century. The first managerial game (an "organisational-productional test") was elaborated and conducted in the USSR in 1932. However, a serious approach to the development of G's,B. was lacking in that period, and the concept was only revived in 1957 in the USA, where it was conducted with the use of a computer. At present, G's,B. are gaining in scope in connection with the problem of improving management, planning and production decision-making, and personnel training. In teaching, educational G.,B. makes it possible to set an object-oriented, social context of professional activity, thereby creating conditions for moulding the personality of a specialist that are more adequate as compared to traditional learning. In these conditions, the assimilation of new knowledge is superimposed on the groundwork of future professional activities; learning acquires a joint, collective character; the development of the specialist's personality occurs as a result of submission to two types of norms—the norms of competent object-oriented actions and the norms of social relations within a collective. In this "contextual" learning, the attainment of didactic and educational aims

is fused in one stream of the students' essentially social activity, which is realised in the form of play activity. The motivation, interest and emotional status of the participants in G.,B. are determined by broad opportunities for goal-setting and goal-attainment and for dialogic communication arising from the material of the problematically-set content of the G.,B.

Genealogical Method, see *Methods of Psyhogenetics*.

General Psychology, theoretical and experimental studies revealing the more general psychological regularities, theoretical principles and methods of *psychology*, its basic concepts and *categorial system*. One can only reveal and describe the general principles, categories, concepts and methods of psychology that constitute the subject-matter of G.P. by abstracting himself from concrete investigations performed in special branches of psychology. At the same time, the results of research into G.P. serve as a foundation for developing all other branches of psychology. The basic notions of G.P. characterise psychic processes, states, and properties. The psychic processes include: (1) cognitive processes, viz. *sensations* and *perceptions*, *memory*, *imagination*, and *thinking*; (2) volitional processes, viz. *motives*, *aspirations*, *desires*, and *decision-making*; and (3) emotional processes, viz. *sentiments* and *emotions*. The psychic states include manifestations of psychic processes, viz. cognitive processes (e.g. doubt); volitional processes (e.g. confidence); and emotional processes (e.g. *moods* and *affects*). The psychic properties include qualities of the mind (*abilities*), stable volitional features (*character*), and fixed emotional qualities (*temperament*). The classification of the basic concepts of G.P. into these groups is purely conventional. The concept "psychic process" underlines the processual aspect of a psychic phenomenon studied by G.P. The concept "psychic state" characterises the static moment, the relative constancy of a psychic event. The concept "psychic property" reflects the stability of the phenomenon under study and its recurrence and constancy within the structure of the *personality*. For instance, an affect may simultaneously be regarded as a psychic process (since it displays the dynamics of senses and its stepwise character), as a psychic state (since it characterises person's mind at a given time period), and as a manifestation of the individual's psychic properties, viz. quick temper or irefulness. Dialectical materialism constitutes the scientific philosophical basis of G.P. investigations.

Generalisation, a product of thinking, a form of *reflection* of the general features and properties of phenomena. Forms of G. correspond to forms of *thinking*. G's in the form of *meanings* of words have been studied most exhaustively. G's are also means of thinking. More simple G's are made by combining or grouping objects on the basis of some individual, random feature (syncretic combinations). A more complicated G. is a complex G., when

a group of objects is combined into a single whole on the basis of different features. A more complicated G. is one in which specific and generic features are differentiated distinctly and a given object is included in some system of *concepts*. Complex G's (like syncretic ones) are present at any level of complexity of intellectual activity. In studying the formation of new G's, psychology uses the method of forming "artificial concepts" by analysing the ways in which a person would group objects (the syncretic, the complex, or the conceptual). The same G. may result from differently organised research activities (G. based on minimally necessary data, and the same G. based on excess data). Subjectively, a new G. (knowledge) may differ in origin and be either obtained (assimilated) in communication (1) with other people or developed independently. In the latter case, this G. may be a new one in social experience. To study G's, psychology defines, compares and classifies concepts. The study of purposeful control of the assimilation of G's is now widely practiced. Normally, several G's are associated with one word (Vassili Davydov). Actual use of one of those would depend on the context of the situation or utterance and on the *motives* and *goals* of the speaker. The forming of G's that enhance social experience is a contribution to historical development of thinking.

Generalisation of a Conditioned Reflex, takes place at the initial stages of the development of a *conditioned reflex*, when the required *reaction* is produced not only by a reinforced *stimulus* but other proximal stimuli as well. The generalisation of the effector part of the response is also possible, e.g. when an animal develops a reflex flexing of an extremity, its other extremities may at first be involved in the response as well. The neurophysiological mechanism of G. of C.R. is the *irradiation* of *excitation*. Recent research has shown that G. of C.R. is accompanied by changes in the electric activity of brain structures at different levels. Opposite to G. of C.R. is the specialisation of a conditioned reflex.

Genetic Epistemology, a trend in the study of *thinking* developed by Jean Piaget and his school (see *Geneva School of Genetic Psychology*) with a view to create a general theory of cognition that would synthesize the evidence of ontogenesis (experimental psychological study of child *intellect*) and *phylogenesis* (history of science). Parallels between the two were perceived in the changed nature of relationships between the subject and object of intellectual operations, both in the individual and in the course of general evolution of scientific ideas. At both levels, progress is seen in the overcoming of *egocentrism* and phenomenalism, and in the deepening of *reflexion* and construction of logico-mathematical structures. G.E. helped study correlations between the logic and psychology of thinking by strongly influencing, among other things, the development of Piaget's psychological concept. However, the original scheme of G.E. failed to productively develop because

G.E. ignored the role of social factors in the development of cognition.

Genetic Method, see *Psychogenetics*.

Geneva School of Genetic Psychology, an orientation of psychology studying the child's mental development, perception and genetic epistemology. Was founded by Jean Piaget and developed by his followers. The main object of study is the origin of a child's *intellect*; the main purpose—a study of the mechanisms of a child's cognitive activity concealed behind the overt behaviour; the main method of research—clinical interview (see *Interview, Clinical*)—concentrating not on recording the external signs of a phenomenon but on the processes giving rise to them. Research carried out by this school has shown that intellectual development is in fact a transition from *egocentrism* (*centration*) to an objective position through *decentration*. The peculiarity of child's mental development is linked with those cognitive structures which are shaped after birth through *actions*. The external actions of a child under two years of age (initially performed successively and in detail) become schematised thanks to repetition and, through symbolic means (imitation, play, mental image, drawing, speech) are internalised between the ages of two and seven. Being coordinated with other actions, at the age of 7-11 they become concrete mental operations. Education can speed up the acquisition of notions, but the extent and nature of achievements are always dependent on the initial development level, while the influence of social environment is determined by the schemes and structures which allow the subject to assimilate these influences; the order of the formation of cognitive schemes is constant, but the duration of their attainment varies depending on a number of factors; the laws of cognitive development are universal, operating both throughout the development of a child's intelligence, and during scientific cognition (see *Genetic Epistemology*). The point of departure for the G.S.G.P. is the concept of interaction of a living system with the environment, assimilation and accommodation being two inseparable processes. In the course of assimilation, the individual as it were superimposes his behavioural patterns on the environment, while accommodation means that he restructures these patterns in accordance with the environment. Piaget proceeded from this general biological stand when interpreting intellectual development believing that striving towards greater equilibrium with the environment (see *Homeostasis*), the individual builds cognitive schemes. This approach has determined the interpretation of the data gathered by the G.S.G.P. through biological categories, which gave rise to well-justified critique of its theoretical position by Soviet psychologists.

Geniality, the highest level of development of man's *abilities*, both of general (intellectual) and specific ones (see *Abilities, specific*). Only when a *personality* attains such results through his or her creative *activities* which constitute an epoch in the life of society

and in cultural development, would it serve a sign of G.

Genotype, the sum total of all the genes localised in the chromosomes of a given organism. In a broader sense, G. is the sum total of the organism's genes inherited from parents. The term was introduced in 1903 by the Danish biologist Wilhelm Johannsen. Each species of microorganisms, plants and animals has a genotype characteristic of it. At the same time, within each species, the organisms differ as to their G. The only members of the human population possessing identical G's are monozygotic (one-ovum) twins (see *Methods of Psychogenetics*).

Gerontological Psychology, see *Developmental Psychology*.

Gestalt [Germ.—form, configuration, pattern], a functional structure which, through the operation of laws inherent in it, structures the multitude of separate phenomena. The term was introduced by *Gestalt psychology* and was originally used in the description of *psyche*, but was later extended to the study of physical, physiological, social and other phenomena. The notion of G. was evolved during the study of sensory phenomena when the need arose to distinguish the elements (*sensations*) constituting them from the method of their structurisation (e.g. although when performed in different keys a tune gives rise to different sensations, it is still recognisable as the same tune). This method came to be known as G. having its own laws, whose study became the principal objective of Gestalt psychology. The laws of G. include: the tendency of the elements to form a symmetrical whole, their grouping in the direction of distinctiveness, simplicity, proximity, balance, "*pregnance*" (the tendency of each psychic phenomenon to assume a more definite, distinct and closed form), etc. These concepts expressed the general methodological trend of G. psychology which unjustifiably granted the status of law to individual facts discovered when studying *perception*, and interpreted perception itself as a "pure" phenomenon of consciousness and not as a mental image of objective reality built through object activities and dependent of previous experience.

Gestalt Psychology [Germ. *Gestalt*—form, configuration, pattern], an orientation in Western psychology evolved in Germany in the first third of the 20th century which studied psychological phenomena from the point of view of whole perceptual structures (*Gestalts*) considered to be primary with respect to their elements. G.P. was opposed to the principle of *structural psychology* (Wilhelm Wundt, Edward Titchener, et al.) according to which *consciousness* is split into elements used to construct psychic phenomena according to the laws of *association* or creative synthesis. The idea that the inner, systematic organisation of the whole determines the properties and functions of the elements constituting it was originally applied to experimental studies of *perception* (mainly visual perception), which made it possible to

examine a number of its major properties: constancy, organisation, the dependence of an object *figure* on its *background*, etc. When analysing intellectual *behaviour*, the role of the sensory image in organising motor responses was traced. The construction of this image was explained by a special mental act of insight or instantaneous grasping of relationships in the perceptual field (See *Insight*). G.P. opposed these ideas to *behaviourism*, which explained behaviour of an organism in a *problem situation* by "blind" motor trials accidentally stumbling on the solution. When analysing *thinking*, G.P. laid the stress on transformation (reorganisation, new centering) of cognitive structures, which allows thinking to assume a productive character distinguishing it from formal logical operations, *algorithms*, etc. Although the principles of G.P. and the facts it discovered have promoted the advance of knowledge about mental processes (this refers, above all, to the development of the category of mental image and the establishment of the systems approach), its idealistic methodology, which derives from phenomenology, has hampered a scientific, deterministic analysis of these processes. Mental "gestalts" and their transformations were viewed as properties of individual consciousness, whose dependence on the object world and the functioning of the *nervous system* were represented along the lines of isomorphism (structural similarity), a variant of *psychophysical parallelism*. The principal figures in G.P. are German psychologists Max Wertheimer, Wolfgang Köhler and Kurt Koffka. Another trend in G.P. is associated with Kurt Lewin and his school, who applied the systems principle and the idea of the priority of the whole in the dynamics of perceptual structures to *motivation* of human behaviour. Other prominent representatives of G.P. are Kurt Goldstein, the advocate of "holism" in *pathopsychology* and Fritz Heider, who introduced the idea of Gestalt into *social psychology* to explain interpersonal perception (see *Perception, Interpersonal*).

Giftedness, (1) a qualitatively unique combination of *abilities* that ensures successful *activity*. Combined operation of abilities representing a definite structure allows to compensate for insufficient individual abilities at the expense of advanced development of others; (2) general abilities, or general elements of abilities determining the range of human possibilities and the level and uniqueness of human activity; (3) mental potential or *intellect*; integral individual characteristics of cognitive possibilities and abilities to learn; (4) a sum of *inclinations* and native qualities; the degree to which native premises of abilities are expressly pronounced; and (5) talent, i.e. the presence of intrinsic factors for outstanding achievements. The polysemantic nature of the term "G" reflects variety of problems treated within an integral approach to abilities. Being the most general characteristic of the sphere of abilities, G. requires all-round study by the psychophysiology, differential and social psychology.

Goal, a realised *image* of an anticipated result, to whose achievement human *action* is directed. In psychology, the notion of G. is also used in the following meanings: formal description of terminal situations towards which any self-regulating functional system strives; and anticipated useful result which determines the integrity and trend of an organism's *behaviour*. The idea of G. as an anticipated useful result is used in analysing the biological prehistory of the origin of a realised human goal and in studying the psychophysiological mechanisms whereby purposeful behavioural acts are regulated. The notion of G. as a realised image of an anticipated result is used in studying voluntary intentional acts representing some specific feature of human activity. *G.-formation* is essentially based on object-related activity aimed at transforming the surrounding world. Two forms of anticipation in animal vital activity are phylogenetic (see *Phylogenesis*) premises for the origin of realised G's in humans, namely, (a) anticipation of some useful result ("necessary future") whose accomplishment would produce a direct adaptational effect, and (b) anticipation of means that would lead to a useful result (such anticipation arises at relatively high evolutionary levels). In *ontogenesis*, G. formation starts with setting a G. and forming intentions in joint activities and ends with the individual setting himself a G. Functionally, an action involves G. forming processes; performance; emotional and cognitive assessment of the course of action; and the final result of that action. The image of the anticipated result assumes a motivational force, becomes a G., begins to guide the action and determine the choice of possible means for implementing that G. by merely referring to a given *motive* or system of motives. *G.-formation* (or emergence of a G.) is the central element of any action, and the principal mechanism whereby the individual devises new actions. The psychophysiological foundation of a G. is the "image of the necessary future" (Nikolai Bernstein) coded in the brain, the *acceptor of action results* (Pyotr Anokhin) that regulates the programme of physiological implementation of an action by means of anticipated and sanctioned commands (affording information about correspondence of the accomplished result to what was required).

Goal Formation, the process of setting new *goals* in human *activity*; a manifestation of *thinking*. G.F. may be involuntary or voluntary, and is characterised by change in time. G.F. involves a number of mechanisms, viz. transformation of a received requirement into an individual goal, choice of one of the available demands, conversion of motives into motivational goals when the former are realised, transformation of "by-products" into a goal, transformation of unconscious anticipations into a goal, identification of intermediate goals, transition from preliminary to final goals, and formation of a hierarchy and sequence of goals in time. G.F. studies constitute an important trend in psychological

analysis of activity (both individual and joint): they examine the dependence of G.F. on *motivation* of activity, the role of *emotions* in G.F. acts, the attainability of a result, and the correlation of general and specific goals. G.F. is analysed for function, historical development of human mentality, ontogenetic (see *Ontogenesis*) development of psyche, and the biological prehistory of goals as actualised images of future results.

Goal Gradient, a change in the strength of *activity motivation* depending on the "psychological distance" from the *goal*. G.G. is characterised by the growing intensity of *motivation* and activity as the desired goal draws nearer. Approach and avoidance gradients are distinguished depending on whether the goal is respectively positive or negative.

Gradient, a regular quantitative change in the magnitude of some property or index (e.g. gradient of stimulus) (see *Taxis*).

Graphology, the doctrine of handwriting as a variety of expressive movements allowing to discern the characteristics and psychic state of the writer reflected in it. The view of handwriting as a distinct expression of man's nature goes back to antiquity (Aristotle, Theophrastus, et al.) The term "G." was introduced by Jean-Hippolyte Michon in the second half of the 19th century. The idea that a study of handwriting can help diagnose personality traits of complex origin and structure has not been scientifically substantiated; neither were the attempts successful to trace direct correlations between the graphic elements of handwriting and a person's character traits and life story, allegedly expressed in it. There is authentic proof that the writer's emotional state and certain typological properties of higher neural activity affect handwriting. Elements of graphological analysis in combination with other techniques are sometimes used in research into problems of *differential psychology* and *psychophysiology*. There are data showing that the handwriting of persons suffering from certain mental illnesses acquires characteristic features. Thus the handwriting of a schizophrenic is often excessively fanciful, which makes its study helpful from the diagnostic point of view. In criminalistics, graphology is used for the identification of an individual, e.g. of the author of a document by comparative study of the graphological traits found in a document whose author is not known with the graphological traits contained in samples written by suspects (legal graphology).

Graphomania, obsessive compulsion to write unsupported by the *ability* this occupation requires.

Group, a social unit differentiated from the social whole on the basis of a certain characteristic (class affiliation, the fact or nature of *joint activities*, the level of development of *interpersonal relationships*, features of organisation, etc.). G's are classified correspondingly: conventional and large

and small G's (see *Group, Large*; *Group, Small*), organised and non-organised G's; official and unofficial G's [see *Group, Official* (formal), and *Group, unofficial* (informal)]; membership and reference G's; G's with high (*collectives*) and low (*corporations, G., diffuse*) development level. Social *psychology* views G's as the subject of *activity* through which the G. is included into the system of social relations. The basic parameters of G's traditionally studied by social psychology are composition (membership); structure (the structure of communications, relations of leadership and subordination, the distribution of *roles*, etc.), G. processes (*interpersonal relations*); the dynamics of G. norms (see *Group Norms*) and *values*, the *level of group development* (see *Collective*).

Group Behaviour of Animals, coordinated joint actions of animals (many higher invertebrates and vertebrates) performed while living in communities, i.e. permanent or temporary associations (herds, flocks, families). G.B. of A. includes all forms of inter-individual relations between animals (mating partners, parents and the young, etc.) and always takes place under conditions of communication among members of the community (see *Communication, Animal*). The more developed forms of communities are characterised by a more or less stable membership. An important element of G.B. of A. is the so-called aggressiveness of animals, i.e. actions directed against other representatives of the species (or animals equated with them). The intra-species struggle for the leading position in the community, a sleeping or resting place, food, nesting sites (see *Territorial Behaviour of Animals*), mating partner, etc. but it rarely assumes the form of genuine fighting (with a possible death of one of the adversaries). As a rule, it is "pretended", "ritualised" contest. Elements of aggressiveness ("commanding respect") form part of animal courting behaviour. As distinct from relationships among people and their joint actions, which are determined by social and historical factors, animal group behaviour remains entirely within the framework of biological laws thus falling within a qualitatively different category of phenomena.

Group Cohesion, a quality characterising the strength, unity and stability of personal interactions and relationships in a *group*. In Western social psychology, the school of *group dynamics* launched G.C. studies based on the concept that a group is to be understood as a psychological unit based on a system of emotional and interpersonal bonds (Leon Festinger). Accordingly, a cohesive group was considered that which "strongly attracts" all its participants. G.C. was also interpreted as something that makes a given group attractive and useful for the individual member (D. Cartwright and Alvin Zander). This resulted in two approaches to assessing G.C., viz. (a) by estimating the mutual emotional attractiveness of group members (the more persons in a group like each

other, the higher the G.C.); and (b) through emotional assessment of the group by its members (the more they are satisfied with the group, the higher the G.C.). Some G.C. assessments took *group consensus* into account. *Sociometry* suggested a special G.C. index, the quotient obtained by dividing the number of mutual choices made by the group members during sociometric studies by the maximally possible number of choices. Soviet social psychology understands G.C. as the *value-orientational* and object-value *unity*.

Group Compatibility, a socio-psychological *group* characteristics that manifests itself in the ability of group members to coordinate their actions and optimise their relationships in various types of joint activities. A requisite for creating a favourable psychological climate in a *collective* is to establish G.C. In a developed collective, G.C. involves a hierarchy of levels (Artur Petrovsky). The lower level implies psychophysiological compatibility of *temperaments* and coordination of sensorimotor acts. The next level implies coordination of functional-role expectations, i.e. the group members' ideas about what, how, with whom, and in what sequence they must do when solving a common problem. The top G.C. level implies *value orientational unity* and adequate responsibility for successes and failures.

Group Consensus, unity of views characterising people making up a *group*. The term "G.C.", introduced by Theodore Newcomb, means that members of a given group have identical views of the world, positions and attitudes. In line with this concept, which emerged on the basis of *interactionism*, G.C. is established in the course of direct interactions, through mutual acceptance by the group members of each other's stances and roles. The G.C. concept asserts that different individuals combined in groups gradually begin spontaneously to assess given situations, events, phenomena, and social objects in the same way. Within this concept, the significant aspects of joint, socially valuable activities and *group cohesion* have not been distinguished. Soviet social psychology treats G.C. as *value-orientational unity*.

Group Decision-Making, the choice of a solution from among a range of alternatives made by a *group* under the conditions of information exchange when solving a common task. The procedure of G.D.-M. necessarily implies coordination of opinions of group members as distinct from group discussion, which is usually regarded as preceding G.D-M. In some cases, G.D.-M. is used under the conditions of restricted information exchange, when members of the group may only state their original decisions. G.D.-M. should be distinguished from the transition from individual decisions (see *Decision-Making*) to group ones taking place without the participants' interaction. Experimental study of the process of G.D.-M. was begun by Kurt Lewin, who examined the influence of group discussion on the decisions reach-

ed. His school discovered the *risky shift* and *group polarisation*, which show that group decisions cannot be reduced to a sum of individual decisions but are a specific product of group interaction. Some data testify to a higher quality of group decisions as compared to individual ones. At the same time, it has been noted that the discussion may give rise to certain deformations (specifically, a risky shift) which impair the quality of group decisions. Investigating the relative value of group and individual decision-making, Western psychologists ignore the *level of group development*, which has to be reckoned with when evaluating and analysing the results of research into the questions of G.D.-M.

Group, Diffuse, a social unit marked by the absence of cohesion as a *value-orientational unity* and of *joint activities* capable of mediating relations of its members. Irrespective of the theoretical trend, US *social psychology* (neobehaviourism, cognitive, psychoanalytical, the interactionist orientations), concentrate mainly on research into problems of small groups (see *Group, Small*), specifically, laboratory analogues of G's, D., i.e. persons accidentally brought together for participation in a psychological experiment. The conclusions drawn as a result of the experiment in a G.,D. are extrapolated without proper justification to all the small groups irrespective of their development level (see *Level of Group Development*). Soviet psychological research has shown that the socio-psychological laws and regularities discovered as a result of the study of G's, D. are not valid for groups with a high development level (see *Collective*).

Group Discussion, Method of, (1) a method of organising *joint activities* of collectives aiming at speedy and efficient group problem solving; (2) a technique which uses the system of logically substantiated arguments in order to influence the opinions, positions and attitudes of the participants in a discussion in the process of direct *communication* (1). The use of G.D.,M. allows: to give the participants, by confronting opposite positions, a chance to see the various aspects of the *problem* to specify and clarify positions, which reduces the resistance to new information; to smooth away hidden *conflicts*, since open statements provide an opportunity to remove emotional bias when assessing the partners' stand; to reach a group decision granting it the status of group norm (if the decision is approved by all participants, group normalisation occurs, if not, *group polarisation* results); to use the mechanism of placing and accepting *responsibility* thus enhancing the participants' involvement in the subsequent implementation of group decisions; to raise the efficiency of the contribution and the interest of the participants in the discussion in fulfilling the group task by giving them a chance to display their competence thus gratifying their *need* for recognition and respect. Different forms of organising group discussion exist, from ordinary production conferences to spe-

cially prepared forms, such as the "*brain storming*". G.D.,M. may be used in the course of any joint activities requiring coordinated group action: industry, science, group psychotherapy (see *Psychotherapy, Group*).

Group Dynamics, a trend in socio-psychological research founded by the US psychologist Kurt Lewin. The chief object of research is the small group (see *Group, Small*). The term "G.D." is used to convey different meanings: (1) to denote a trend investigating small groups along the principles of *Gestalt Psychology*; (2) to describe the processes occurring in the group as it grows and changes; (3) to describe the cause-and-effect relationships explaining these processes; (4) to point out the set of methods used to study social *attitudes* and *interpersonal relations* in a group. Besides the problems listed above, G.D. investigates the correlation between individual and group *motivation*, inter- and intra-group *conflicts*, *leadership*, etc. The primary object of research in G.D. was the diffuse group (see *Group, Diffuse*). The principal method was staging laboratory situations with preset parameters. Soviet psychology is investigating the problems falling within the G.D. range from the position of the theory of the *collective*.

Group Formation, a process in the course of which a previously accidental aggregation of individuals turns into a separate isolated small group (see *Group, Small*) with a certain structure and typological characteristics (*collective, corporation*, etc.). A specific type of G.F. is *collective formation*. Western psychologists, who do not consider the collective an object of research in its own right and take no account of the principle of *work-mediated interpersonal relations*, regards G.F. as a socio-psychological phenomenon governed by the general rules and laws of *group dynamics*. It is maintained that G.F. starts when a certain number of people motivated by individual *needs* display a *striving* for a common *goal*. The process is completed when such interpersonal relations are formed (see *Interpersonal Relations*) which are necessary for attaining this goal. Three main group-forming factors are distinguished: coincidence of individual *interests*; people's spatial and temporal proximity; and the presence of a stressful situation (see *Stress*) threatening their personal well-being and prompting them to unite. This interpretation, which proceeds from recognition of strictly individualistic interests of group members, applies to communities with a low *level of group development* and is therefore invalid for the processes of collective formation.

Group Integration, the coordination, order and stability of a system of intergroup processes. G.I. is revealed in a relatively continuous life of the *group*, which implies a rather stable reproduction of the psychological components of intergroup activities, a certain degree of autonomy. G.I. is a necessary requisite for the stable functioning and the very existence of the group; the

lack of integrative properties inevitably leads to the disintegration of any social unit. Being the result and distinct reflection of the stable reproduction of a system of intergroup activities, G.I. is reflected in certain states of its structures. Integration processes are distinguished by the fact that in usual conditions they are "hidden" in the everyday functioning of the group and show signs of their existence only when overcoming sudden impedements and neutralising erupting discord. Integration processes are intended to counteract internal and external perturbations threatening the integrity of the group and to secure its preservation by transforming its initial components. The genetic sources of G.I. lie in socially conditioned *joint activities*.

Group, Large — (1) a social unit embracing a considerable number of people acting together in socially meaningful situations; (2) a conventional community of individuals differentiated as a whole on the basis of certain characteristics (class, nationality, sex, age, etc.). G's, L. embrace people living in the same state, nations, ethnic groups, classes, parties, professional/trade and other organisations, social movements, age cohorts, mass media audiences, bodies of employees at enterprises and organisations numbering hundreds and thousands of people, etc. The specific regulator of the behaviour of the members of a G.L. are social relations determining the group's way of life, including *goals*, *interests*, *values*, *needs*, culture, traditions, morals, customs, and typical forms of the *individual*'s response to social situations and events. Major G's, L. include classes, whose profound scientific analysis is contained in the works of Marx, Engels and Lenin.

Group Normalisation, see *Group Polarisation*.

Group Norms, standards of *behaviour* accepted in a given community and governing human relationship. Observance of G.N. is a requisite for effective interaction of individuals in the course of *joint activity* and *communication* (1). When a subject complies with social norms reflected in G.N., this makes him socially responsible for his behaviour. G.N. fulfil regulative, evaluative, stabilising, and other functions associated with human relationships in social *groups*. G.N. allow a person to assess his own and other people's actions, compare them with models, choose the necessary forms of behaviour and drop out those unacceptable to a given community, and guide and control his relations with other people. The functioning of G.N. is directly connected with social control (see *Control Social*) of group and individual activity. Any organised community of people existing for a fairly long time would develop for themselves and be guided by a definite system of specific group norms. A uniform and unambiguous response by the group members to individual actions differing from the behaviour of most of the other members would signify the presence of G.N. G.N. establish the basic elements that govern socio-psychological processes in a given group, viz.

human relations, rights and duties, possible versions of intragroup behaviour, and the content and admissible bounds of sanctions against persons whose behaviour is noticeably deviant from established norms. One can only understand relations between individuals in a group when he knows what G.N. they accept and reject, and why.

Group, Official (Formal), a social unit having a legal *status*, whose members are united under conditions of the social division of labour by socially determined *activities* which organise their work. A G.O.(F.) always has a normative, hierarchical structure or status system. The relative structural rigidity is a necessary condition of successfully dealing with problems set before it. Under certain conditions, this may hamper their solution (for instance, when the goals of group activity are undergoing a substantial change) and frequently leads to the emergence of temporary informal groups (see *Group, Unofficial*), which make up for the insufficient flexibility of the G.O.(F.). In certain cases, this may result in the restructuring of the G.O.(F.).

Group Orderliness, the capability of a *group* as a collective subject of *joint activities* for active reorganisation of unorganised group states into organised, structured ones. G.O. is manifested in its ability to independently create an organisation in an uncertain situation and to combine the initiative and variety of forms of individual behaviour with stable unity of action in achieving the group *goal*. The nature of G.O. under exceptional, *stress* conditions may serve as a criterion for assessing that organisation, viz. (1) the ability of a group to independently plan the steps of reaching its goals and to distribute the forthcoming work among its members; (2) the high discipline of group members in fulfilling the tasks entrusted to them; (3) the ability of a group to effectively control and correct individual actions, and to suppress manifestations of disorganisation, and (4) the ability of a group in a relatively short time to summate the work performed by its members, to ensure the general purposefulness of interaction, etc. (See *Group Integration: Harmony in Work*).

Group Polarisation, a socio-psychological phenomenon appearing when previous differences of opinion between *group* members are not only evened out in the group discussion but on the contrary exacerbate to split the group into two groupings holding diametrically opposite views. In such cases, compromise opinions as it were disappear giving way to extreme ones. G.P. also implies an extremisation of group decisions (see *Group Decision-Making*) or opinions as compared to averaged decisions or opinions. The extent of G.P. is the greater the farther the initial preferences of group members are removed from average values. A particular case of G.P. is the *risky shift*. G.P. may arise outside open discussion as a result of regular exchange of opinions among participants in *joint*

activities and lead to the formation of groupings holding diametrically opposed positions. In its extreme form, G.P. is expressive of the state of intragroup *conflict*. The phenomenon opposite to group polarisation is group normalisation. It occurs in the course of a discussion or outside it when initially diverging opinions converge and the number of extreme opinions decreases while the number of averaged ones increases.

Group, Reference, a real or imaginary social unit whose *norms*, *values* and opinions provide a frame of reference for the individual's behaviour. By and large, G's, R. perform two main functions: normative and comparative. The normative function finds expression in motivational processes (see *Motivation*): G's, R. act as a source of norms of behaviour and *value orientations* for the individual. The comparative function is reflected in perceptual processes (see *Social Perception*): G's, R. act as the standard which allows the individual to evaluate himself and others. Correspondingly, G's,R. are subdivided into normative and comparative, but both functions may be fulfilled by the same group. Also distinguished are positive and negative G's,R (see *Object of Reference Relations*). In developed socialist society the most important positive G.,R. is, as a rule, the work collective which provides the personality with frame of reference.

Group, Small, a relatively restricted social unit comprising individuals personally communicating and interacting. A particularly intensive investigation of G's, S. is conducted within the *group dynamics* school, one of the trends in Western *social psychology*. It regards the structure of a G.,S. as one of its basic characteristics, i.e. differentiated system of mutually regulated elements and relations, which include: the system of *interpersonal interactions*, the distribution among participants of the information of *roles*, positions, views, opinions, evaluations and influence (see *Leadership*). A feature of a G.,S. is involvement of all its members into *interpersonal relations*, which allows each of them to feel part of the group (experience the "us" feeling). Soviet psychology studies the structure and phenomena occurring in a G.,S. as dependent on the system of social relations into which it is included, and on the content of the *activity* which mediates group processes (see *Collective*).

Group, Unofficial (Informal), a social unit which has all *group* characteristics (an established system of *interpersonal relations*, *joint activities*, the feeling of belonging to a group, etc.) but no legal *status*. Depending on the type of activity uniting members of the G.,U.(I.) they are subdivided into professionally and non-professionally oriented groups. With reference to the form of their existence, they can act as isolated units or emerge within official groups [see *Group, Official (Formal)*]. Brought together by common *interests* lying outside the professional field, G's,U.(I.) exist in the form

of clubs, sports sections, societies, etc. G's,U.(I.) united by professional interests often function as *collectives* of creative workers (e.g. the so-called invisible colleges—informal associations of scientists employed by different organisations but maintaining contacts with colleagues researching into the same set of problems). Members of all G's,U.(I.) are united by friendly feelings, mutual liking, emotional attraction, understanding and respect, which frequently exerts a beneficial influence on relationships within the official groups of which such an informal group makes a part.

H

Habituation (in psychophisiology), negative training resulting in the absence of *reaction* to a given *stimulus*. Very generally, H. involves a gradual decrease of the reaction magnitude as a result of repeated stimulation. H. differs from fatigue and exhaustion in that the reaction may be evoked again by merely changing the stimulus. H. manifests itself most distinctly in the *orientating reflex* system.

Hallucinations, pathological disturbances of *perception* activity resulting in the *perception* of objects which at the moment do not affect relevant sense organs. H. arise spontaneously as a consequence of involuntary outward projection of *images*, and their localisation in time and space which results in their perception as extent.

Halo Effect, a general impression about the way a person's actions and personal qualities are perceived under shortage of information about that person. When the initial impression forms and develops, H.E. may take the form of positive bias ("positive halo") and negative bias ("negative halo"). For instance, if the first impression is generally favourable, the person's entire behaviour and all his features and actions would be reassessed positively to distinguish and exaggerate chiefly positive elements whilst underestimating or ignoring negative ones. If the first general impression about a given person proves negative, then even his positive qualities and actions would subsequently be either totally unnoticed or underestimated against the background of exaggerated attention to his shortcomings. Like many other phenomena of *social perception*, H.E. is based on mechanisms that allow to categorise, simplify and select social information essential for the success of given activity when there is shortage of relevant evidence.

Harmony in Work, a degree of coordination in interindividual interaction during some specific *joint activities*. H. in W. is characterised by high productivity of jointly working individuals, who are quite satisfied with the process and result of their work.

Hatred, a stable and active negative

human feeling directed at phenomena that are counter to one's individual *needs*, *convictions*, and *values*. H. can evoke not only a corresponding assessment of its object, but also high activity aimed against it. The forming of H. is normally preceded by acute dissatisfaction caused by an undesirable course of events, or by systematic accumulation of weaker influences of the source of negative *emotional experiences*; in such cases, the real or imaginary cause of these events becomes the object of H. In educational practice, the forming of H. is controlled by revealing the essence and causes of undesirable phenomena. To impede the development of undesirable H., the individual counters it with his moral convictions, and also with his awareness that unpleasant events are objectively inevitable. In concrete historical terms, morally justified H. (e.g. H. of the oppressed for their oppressors) plays a markedly positive role to become a meaningful *motive* for participation in political movements and revolutionary struggle.

Higher Mental Functions, complex, systems mental processes of social origin that form during one's lifetime. H.M.F. are a major concept in modern psychology introduced by Lev Vygotsky and further developed by Alexander Luria and other Soviet psychologists. The idea that H.M.F. are socially conditioned mental formations or conscious forms of mental activity is essentially based on the tenets of Marxist psychology concerning the socio-historical origin of human *psyche* and the leading role of labour in forming human *consciousness*. As systems, H.M.F. involve highly flexible and interchangeable components. By developing the theory of H.M.F., psychologists could substantiate the tenet concerning the basic possibility of restoring impaired mental functions by restructuring the functional systems that constitute their physiological foundation. In this case, they distinguish intrasystemic and intersystemic restructuring of functional systems (the transfer of a process to a higher, conscious level; the replacement of a fallen-out link in the functional system with a new one, etc.). The forming of H.M.F. is characterised by the fact that they initially exist as a form of interaction between people, and only later as a totally inner (intrapsychological) process. The transformation of external functional means into inner psychological ones is termed *interiorisation*. Another important feature of the development of H.M.F. is that they become gradually "compressed" and automatic. In the initial stages of development, H.M.F. represent a broad form of objective activity that relies on relatively elementary sensory and motor processes; subsequently, this activity is "compressed" to assume the nature of automatised *mental actions*, and the H.M.F. psychological structure simultaneously changes, too. Psychophysiologically, H.M.F. are based on complex functional systems involving a large number of afferent and efferent links (see *Afferent Synthesis*; *Effectors*). Some links in the functional system are strictly "allotted" to definite brain

structures, while the rest are highly flexible and interchangeable, this being the factor underlying the restructuring mechanism of the functional system as a whole. Thus, each H.M.F. is associated with the work of not just one "*brain* centre", and not with the whole brain as a single uniform entity, but is caused by the brain's systems activity, in which various brain structures are differently involved (see *Localisation of Higher Mental Functions*).

Historical Psychology, see *Sociogenesis*.

Historiography of Psychology, the totality of studies whose subject-matter is the *history of psychology*. In the 19th century, only a few works appeared in this field. In the 20th century, it has evolved into a particular trend which is quite substantially represented abroad in the works by E.Y. Boring (USA), Ludwig Pongratz (FRG), and others. In the USSR, the basic problems of the history of psychology are covered from the standpoint of the Marxist methodology in the studies by Boris Ananyev, Lyudmila Antsyferova, Yelena Budilova, Artur Petrovsky, Boris Teplov, Ovsep Tutunjan, Michail Yaroshevsky, and others. H. of P. sees its task as reconstruction of the past with the aim of working out a general theory of the evolution of psychological ideas, revealing the conditions and causes of this evolution (sociocultural and personal), the conformity to the laws and methods of obtaining new knowledge on mental reality, the interaction of science and social practice.

History of Psychology. The first scientific notions concerning man's *psyche* appeared in the ancient world (India, China, Egypt, Babilon, Greece, Georgia) within philosophy as a counterbalance of the religious tenet treating the *soul* as a particular entity connected with the body in an external and fortuitous manner. The development of these notions stimulated the requirements of the social practice, cure and education. Ancient physicians established that the *brain* is the organ of the psyche and elaborated the teaching on *temperaments*. This natural scientific trend was closely connected with the treatment of the human soul as a material (heat, air, etc.) particle of cosmos moving according to its own eternal and inevitable laws. In idealistic concepts, the soul was set apart from the body and was recognised as immortal. The teaching of Aristotle was the summit of psychology in the ancient world (treatises "On the Soul", "On the Origins of Animals", etc.). He interpreted the soul as a form of organisation of the material body capable of life, rather than a matter or an incorporeal entity. Aristotle set forth the first system of psychological notions elaborated on the basis of objective and genetic methods. In the Hellenistic period, the soul turns from the principle of life in general into a principle of its certain manifestations: the psychic is separated from the general biologic. In feudal times, the development of the positive cognition

of psyche was sharply curtailed but not stopped altogether. The ideas of progressive physicians and thinkers of the Arabic-speaking world (Ibn-Sina, Ibn al-Hassan, Ibn-Roshd and others) paved the way for the subsequent flourishing of natural, scientific psychology in Western Europe, where, with the emergence of capitalism, an urge was growing to examine man experimentally as a natural being whose behaviour is subject to the laws of nature (Leonardo da Vinci, Juan Vives, Huarte de San Juan, and others). The era of bourgeois revolutions and the triumph of a new, materialistic world-view engendered a totally new approach to the study of mental activity, at that stage explained and studied from the positions of strict *determinism*. Socio-economic transformations stimulated progress in psychological thinking which had been enriched by a number of fundamental categories. Descartes discovered the reflectory nature of behaviour (see *Reflex*), and transformed the notion of the soul into a non-theological notion of *consciousness* as a direct knowledge of the subject about his own mental acts. This era saw the emergence of a number of important scientific theories: of *association* as a natural link between psychic phenomena determined by links between body phenomena (Descartes, T. Hobbs); of *affects* (Spinoza); of *apperception* and *the unconscious* (Gottfried Leibniz); of the origin of knowledge from the individual sensual experience (John Locke). The specific scientific elaboration of the principle of association by the British physician David Hartley made this principle, for a century and a half, the basic explanatory concept in psychology. The psychological ideas of Denis Diderot, Russian scientists Mikhail Lomonosov, Alexander Radishchev, and other progressive thinkers developed within the bounds of a materialist world outlook. In the 19th century, psychology gave rise to experimental methods of study of mental functions, and the first attempts were made to introduce in the analysis of these functions quantitive assessments (Ernst Weber, Gustav Fechner, Hermann Helmholtz, and others). Darvinism proved the necessity of studying psychic functions as a real factor in the development of biological systems. By the 1870s-'80s, psychology became an independent field of knowledge distinct from philosophy and physiology. Special experimental laboratories became its main centres of development. The first of them was organised by Wilhelm Wundt (Leipzig, 1879). Similar establishments were set up in Russia, England, the USA, France, and other countries. Ivan Sechenov put forward a consistent programme for the elaboration of psychology on the basis of the objective method. His ideas engendered experimental work in the field of psychology in Russia (Vladimir Bekhterev, Nikolai Lange and others), and later on, through the works of Bechterev and Pavlov, made an impact on the elaboration of objective methods in world psychological science. The basic topics of *experimental psychology* at the initial stage were *sensations* and

the reaction time (Franciscus Donders) and subsequently *associations* (Hermann Ebbinghaus), *attention* (James Cattell), emotional states (see *Emotions*) (William James, Théodule Ribot), *thinking* and the *will* (*Würtzburg School*, Alfred Binet). *Differential psychology*, whose task was to determine individual differences between people with the help of measuring methods (Francis Galton, Alfred Binet, Alexander Lazursky, William Stern, and others) was taking shape, along with the search for general regularities of mental processes. A crisis was in the making in psychology at the turn of the 20th century, a crisis engendered by the breaking of the old concepts. The notion of consciousness as a totality of phenomena experienced by the subject proved to be totally untenable. Stress was now laid on the orientation of man in the environment, on the factors regulating behaviour which are concealed from consciousness. *Behaviourism* became the main trend in American psychology, according to which psychology should not go any further than observing organism's responses to outside *stimuli*. The dynamics of these responses was conceived as a blind search accidentally leading to a successful action fixed by repetition (*the trial and error method*). The postulates of this trend were expressed by John Watson (1913). Another influential school was *Gestalt psychology*, whose experimental subject was the integral and structural nature of psychic formations. At the beginning of the century Sigmund Freud's *psychoanalysis* also emerged, according to which the decisive role in the organisation of man's psyche belongs to unconscious motives, first of all sexual ones. The new trends enriched the empiric and specific methodological basis of psychology and contributed to the development of its conceptual system (the categories of *action*, *image*, *motive*). However, the inadequate philosophical interpretation of these achievements led to erroneous and one-sided conclusions. The attempts to understand from idealistic positions, the dependence of man's psyche on the world of history and culture and social life inevitably led to dualism, to the concept of "two psychologies" (Wilhelm Wundt, Wilhelm Dilthey, Heinrich Rickert), according to which psychology cannot be an integral science since an allegedly natural scientific, experimental explanatory approach to psyche is incompatible in principle with the cultural historic approach. The psychologists who brought to the foreground the role of social factors in regulating human behaviour (James Baldwin, John Dewey, George Mead, and others) also failed to elaborate a productive approach to the *socio-genesis* of the personality and its psychic functions since sociality itself was interpreted as "pure" intercourse outside specific activity.

Marxism introduced new principles into scientific psychology which have profoundly affected it. Konstantin Kornilov, Pavel Blonsky, Mikhail Bassov, and others actively supported the idea of restructuring psychology on a

Marxist basis. The Marxist principle of historicism played a key role in the works of Lev Vygotsky and his followers. Soviet psychology was inseparably linked with the development of research into psycho-physiology in the works of Ivan Pavlov, Vladimir Bekhterev, Alexei Ukhtomsky, Leon Orbeli, Sergei Kravkov, Nikolai Bernstein, and others. In refuting the idealistic and mechanistic (*reactology*, *reflexology*) influences, Soviet scientists asserted in psychology the Marxist teaching on *activity* and its socio-historical foundation, the ideas of Lenin's theory of *reflection*. The theoretical and experimental study of the basic problems of psychology was carried out by Alexander Luria, Alexei N. Leontyev, Boris Teplov, Anatoli Smirnov, Sergei Rubinstein, Boris Ananyev, Nikolai Dobrynin, Alexei Zaporozhets, and others.

The development of psychology in the capitalist world in the 1930s-'40s can be described as the disintegration of the main schools. Behaviourist theories put forward the notion of *intervening variables*, i.e. the factors mediating the motor response (the dependent variable) to the *irritant* (the independent variable). The logic of the development of science and the demands of practice led psychology to the study of the "central processes" occuring between the sensory "input" and the motor "output" of the body system. This trend gained ground in the 1950s-'60s due to the experience accumulated in the use of computers. Such branches of psychology as engineering, social and medical psychology began to develop. The works of the Swiss psychologist Jean Piaget, who studied the transformation of the internal structure of mental activity in *ontogenesis*, exerted a strong influence on the interpretation of mental processes. The attitude towards neuro-psychological mechanisms is also changing: rather than being ignored, they are now perceived as an inalienable part of the structure of behaviour (Donald Hebb, Karl Pribram). Psycho-analysis engenders *neo-Freudianism*, a trend linking the unconscious psychic mechanics (see *The Unconscious*) with the operation of the socio-cultural factors (Karen Horney, Harry Sullivan, Erich Fromm), which has correspondingly restructured *psychotherapy*. The so-called existentialist, *humanistic psychology*, asserting that the study of scientific notions and objective methods leads to the dehumanisation and disintegration of the personality and impedes its development, has begun to claim the role of a "third force" along with behaviourism and Freudianism. This trend develops into undisguised irrationalism. Dissatisfaction with biologistic and idealistic concepts has evoked a lively interest among progressive psychologists in the capitalist countries towards the dialectic-materialist interpretation of the mental activity, the achievements of Soviet psychology (Georges Politzer, Henri Wallon, Lucien Sève, Paul Fraisse, and others).

Homeostasis, a dynamic equilibrium maintained by a system by resisting

the internal and external factors threatening to upset it. The notion was originally evolved in physiology for the purpose of explaining the stability of the organism's visceral phenomena (blood, lymph) and the constancy of the basic physiological functions, which is attained through the operation of the self-regulatory mechanism. The idea was developed by the US physiologist Walter Cannon as part of the "body wisdom" doctrine, the body being an open system constantly maintaining its own stability. Receiving *signals* about changes threatening the system, the organism switches on the adaptive mechanism which continues to operate until the equilibrium is re-established and its parameters return to their initial value. The principle of H. was later adopted from physiology by cybernetics and other sciences, including psychology, assuming a more universal significance as a principle of systems approach and autoregulation through feedback. The idea that every system strives to maintain its stability was transferred to the interaction between the organism and the environment. Such transfer is a feature of, for instance, *neo-behaviourism* which holds that a new motor response is reinforced due to the organism release from the need which has upset its H.; of the doctrine advanced by Jean Piaget, who recognised that mental development occurs in the process of the individual's adjustment to the environment; of Kurt Lewin's concept of "field", according to which *motivation* arises in an imbalanced "system of tensions"; of *Gestalt psychology*, which maintains that whenever the equilibrium between the elements of the mental system is disturbed it strives to re-establish it. Explaining the phenomenon of autoregulation, the principle of H. fails, however, to reveal the source of alterations in the mind and its activities.

Hope, an *emotional experience* arising when the subject anticipates a certain desired event. H. reflects an apprehended likelihood of its actualisation. Its formation is explained by the cognition of the objective causes upon which the anticipated events are dependent, or on the basis of subjective emotional experience (feelings of joy, failure, etc.) accumulated in similar situations in the past. By predicting the possible course of events in given circumstances, H. plays a role of an internal regulator of activity which helps the subject to determine its consequences and necessity. In case of strong *motivation*, H. may be maintained even in the absence of conditions that substantiate it.

Hormic Approach, the concept advanced by the US psychologist William Mcdougall who believed that the basis of individual and social behaviour is innate (instinctual) energy or "horme", which determines the nature of the perception of objects, produces emotional arousal and directs the organism's mental and bodily actions towards a certain goal. Corresponding to each instinct is an emotion (e.g. the instinct of taking flight and the emotion of fear), which turns, from a brief state,

into a sentiment as a stable and organised system of *dispositions* towards action. In his works *Social Psychology* (1908), and *Group Mind* (1920), Mcdougall attempted to explain social and mental processes by a striving towards a biologically meaningful goal inherent in the individual's psychophysical organisation, thus rejecting their scientific causal explanation (see *Depth Psychology*).

Humaneness, a system of a personality's *attitudes* determined by moral norms and *values* to social objects (individuals, groups, living beings), which assumes the form of commiseration and sharing joy in the consciousness and is realised in communication and activity through acts of cooperation, compassion and assistance. The notion of H. as a social attitude including cognitive, affective, and conative components is used when analysing a broad range of issues involved in assimilating moral norms, *empathy*, the so-called helping behaviour, etc. As distinct from ideas of bourgeois psychologists, the notion of humaneness as developed by Soviet psychology has a concrete historical character determined by the principles of equality and justice prevailing in socialist society. The notion of H. helps overcome the "altruism-egoism" opposition, which implies either a humiliating self-sacrifice or self-seeking conduct. In its advanced form, a subject's H. finds expression in groups with a high development level (see *Level of Group Development*), where it is a form of existense of such *interpersonal relations* which imply that each member of the *collective* treats others as he does himself and vice versa, proceeding from the goals and tasks of joint activities. A collective secures each personality not only the respect due it but also sets it high standards. The empyrical embodiment of H. is collectivist identification (see *Identification, Collectivist*). The formation of H. in *ontogenesis* proceeds through the development of the self-awareness of the child who comes to distinguish himself from his social environment. Research has shown that of tremendous importance in the development of a child's H. is his *joint activities* first with an adult and later with peers. Joint activities create a unity of *emotional experiences*, and the changing roles in play and communication shapes the child's humane attitude to *significant others*; from direct manifestations of emotional responsiveness (such as commiseration with the unhappy and joy for the happy), he passes on to acts of commiseration in joint activities mediated by moral norms. A study of the laws of development and establishment of H. as a characteristic of the personality, as well as of the mechanism of its functioning is a major objective of moral education and the formation of a harmoniously developed personality.

Humanistic Psychology, a trend in Western, mainly US *psychology* which takes as its principal object the *personality* as a dynamic integral system with an open potential for *self-actualisation* characteristic only of man. H.P. is opposed, as a "third force", to both

behaviourism and Freudianism which lay the main emphasis on the personality's dependence upon its past experience. H.P. maintains that an individual's behaviour is determined by his present and future. According to this trend the main feature of the personality is the striving for freely realising his or her potentialities (Gordon Allport), especially creative ones (Abraham Maslow), strengthening self-confidence and attaining the "ideal self" (Carl Rogers). The principal part in this process is assigned to the *motives* which ensure, not conformist behaviour (see *Conformity*) but the growth of the constructive element of the human self whose integrity and intensity of emotional experiences are to be stimulated by a special form of *psychotherapy*. Rogers named it the "client-centered" psychotherapy, in which the physician enters into a close personal relationship with the patient and regards him not as patient but as a client who assumes responsibility for solving his own problems. The role of the physician is that of a counsellor creating a warm emotional atmosphere which makes it easier for the client to reorganise the structure of his self, his inner (phenomenal) world, attain the integrity of his personality and grasp the meaning of its existence. Opposing the concepts which ignore the specifically human in the personality, the latter's representation by H.P. is nevertheless inadequate and one-sided, for it does not recognise that the personality is shaped by socio-historical factors. H.P. is sometimes called existential psychology.

Humour, see *Sense of Humour*.

Hypermnesia, unusual, sometimes pathological sharpening of memorising, retention and recall. Pathological and borderline cases are characterised by the person's ability to memorise a multitude of insignificant and irrelevant details (railway timetables, calendar dates, telephone numbers, etc.) Occurs irrespective of a person's intellectual ability and is met even in feebleminded. May also appear in response to the stimulation of drugs, fever, brain injuries, and electric stimulation of certain areas of the cerebral cortex. In such cases, recollections assume the form of involuntary externally imposed "flashes of past experiences". H. may also occur under hypnotic state and in ordinary dreams. It is demonstrated by persons with the so-called phenomenal memory—mnemonists.

Hypnosis, temporary state of consciousness characterised by sharp decrease of its span and concentration on the content of *suggestion*. It stems from changes in the function of individual control and self-awareness. H. is induced by the hypnotist's thorough special technique of influence (see *Hypnotisation*) or purposeful self-suggestion (see *Autohypnosis*). One should distinguish between spontaneously manifested features of the hypnotic state and those induced by the hypnotist. The state itself is characterised by enhanced suggestibility, posthypnotic *amnesia*, involuntary forgetting the content of the hypnotic suggestion and

the very fact of hypnotisation, etc. While in a hypnotic state, the subject may display physiological and psychic responses unusual to him in his normal state of mind. They may affect the area of *perception* (positive and negative illusions); *memory* (forgetting or recalling facts and events from the past and more active memorisation of new material); *attention* (its higher concentration and distribution); *thinking* (disturbance of the normal logic or greater creativity); *personality* (change of *motivation*, habits, *mood*, personality traits, suggestion of another person's image, manipulating with subjective time). The presence of these changes has been confirmed by physiological and psychological tests. Until the mid-19th century, the notion of H. was based on the assumption of special "fluids" or magnetic waves supposedly emitted by the hypnotist (Franz Mesmer, 1771). It was materialistically considered in Ivan Pavlov's works. Physiological theories regard H. as a specific state of the central *nervous system*—"partial sleep" (Ivan Pavlov, Konstantin Platonov). Psychological theories regard H. as changed functioning of the subject's normal consciousness under unusual conditions: suggestion of motivation, attention, expectations and interpersonal relations. H. is used for treating alcoholism, drug addiction and smoking, and as an anaesthetic in surgery, obstetrics and stomatology. Psychotherapy uses the method of hypnoanalysis of conflicts and *attitudes* of the personality. The use of the H. technique makes it possible to conduct an experimental study of behaviour at different levels of the functioning of the subject's consciousness.

Hypnotisation, inducement of the hypnotic state by the hypnotist or the subject himself (see *Autohypnosis*) through the use of verbal or non-verbal stimuli. The hypnotist using the classic verbal technique repeatedly or just once orders the subject to close his eyes, feel his eyelids grow heavy, relax and fall asleep, and then proceeds to other necessary suggestions producing corresponding movements, actions, etc. The non-verbal technique implies the use of either extremely powerful external *irritants* or very gentle monotonous and rhythmical (sound, visual, tactile, thermal, etc.) ones; the subject is often ordered to fixate his eyes on a glistening object, to concentrate on the hypnotist's words and passes; the sound of a metronome is also frequently used. Two varieties of H. are distinguished: the imperative one, based on strict directive-like injunctions of the hypnotist and powerful non-verbal stimuli, and the cooperative variety which implies the-use-of gentle forms of H., gentle repetitive stimuli and persuasive verbal suggestions. In certain cultures, ritual dances, rhythmic sounds of musical instruments (the beat of drums, tambourins) and monotonous choir singing are tantamount to H. The degree of the subject's H. is ascertained by special tests ("clasped hands", "falling forward and backward", etc.) The choice of H. technique is determined by the individual traits of the subject and the hypnotist, as well as by the

objectives pursued by hypnosis. The effect of H. depends on the subject's susceptibility ("hypnoability"), the adequacy of the technique of the subject's psychophysical organisation (influencing predominantly this or that sense organ), the absence of hypnophobia (fear of being hypnotised).

Iatrogenic Illness, a disorder of the patient's mental state brought on by some unintentional suggestion by the physician (for example, some careless comment about the illness) and conducive to neurosis. Synonym: a suggested illness.

The Ideal, an object's special mode of being, its representation (active reflection) in the psychological world and vital activity of the subject. "The ideal is nothing else than the material world reflected by the human mind and translated into forms of thought (Karl Marx). The transformation happens in the process of material and spiritual production, which, in line with society's requirements, engenders multifarious forms of the reflection of reality in the human brain: sensory and mental *images*, the methods of their construction and application, spiritual values and orientation. Being derived from the material, the I. acquires a relative independence, thereby becoming an active source of vital activity. Owing to the presence of the I., man is capable not only of reflecting reality but also of transforming it both in his consciousness and in practice. Under certain conditions, the process of transformation can lead to illusory products of the I. that are inadequate to reality. The biological requisites for the I. evolve in animals as the ability to pattern their behaviour off the environment through the "model of the necessary future" (see *Physiology of Activeness*). However, it is only in the process of labour which creates objects of the material and spiritual culture, including the language and other *sign* systems, that the brain becomes a substratum of the I. Labour, by transforming the matter of nature, gives it socially meaningful forms which the subject perceives as generalised images of reality. By mastering these images and operating with them, the individual projects the goals and the means of his activity (see *Reflection*; *Psyche*; *Consciousness*; *Interiorisation*).

Identification, (1) discerning something or somebody; (2) likening to somebody or something. In the first meaning, the term "I." is used in the psychology of cognitive processes, and also in *engineering* and *juridical psychology*, where I. is understood as a process of comparison, collation of an object with another on the basis of a particular sign or property resulting in the ascertainment of their similarity or dissimilarity. The I. process helps in the discernment of images, the formation of generalisations and their classification, analysis of sign systems, etc. When the object of I. is

a person, it becomes a process of qualitative identification on whose basis a personality may be assigned to a particular class or type, or be recognised as unique in its own way throughout one's life. In the second meaning, I. is the emotional cognitive process of *the unconscious* identification of one subject with another subject, group, or model. The concept of I. was introduced by Sigmund Freud, initially in interpreting the phenomena of pathological *depression* and, later on, with the aim of analysing *dreams* and certain processes through which a child assimilates the behavioural pattern of *significant others*, forms the "superego", assumes a female or a male role, etc. In modern psychology the concept of I. encompasses three intersecting areas of psychological reality: (1) the process of unification of the subject with another individual or group on the basis of an established emotional bond, as well as the incorporation as one's own of their norms, values and standards. This may appear as an open imitation of a model's gestures and movements, which is particularly visible among preschool children; (2) the perception by the subject of another person as an extension of himself, and *projection*, i.e. the attribution to that individual of one's own personal traits, feelings and aspirations; (3) the mechanism of placing oneself in the position of another individual, which appears in the form of immersion, the transfer of one's own ego into the space and time of another individual and results in the assimilation of another's *personalised meanings*. This mechanism evokes corresponding behaviour (see *Altriusm*; *Empathy*) and the manifestation of *humaneness* (see *Identification, Collectivist*; *Personality*; *Alienation*).

Identification, Collectivist, an attitude the subject holds towards other people which in the nature of the *value orientations* determining his activities coincides with the attitude towards himself and corresponds to collectivist principles. I.,C. is formed in collective interaction resulting from the practical assimilation of the moral norms of Communist morality and implies the rejection of altruistic all-forgiveness and egoistic pragmatism as regards one's associates. *Humaneness*, care for each member of the *collective*, combined with an exactingness towards him are a display of I.,C. Behaviour in which an individual applies different moral norms to himself and others and places different requirements on himself and others and, proceeding from them, undertakes corresponding actions, is a violation of I.,C. principles. I.,C. incorporates moral values and norms of behaviour corresponding to the moral ideals of the Soviet people. It reaches its highest form in *groups* of the collective type, which are the basic cell of socialist society. One manifestation of I.,C. is *efficient group emotional identification* as a form of *interpersonal relations*, which helps organise the activities of the members of the collective directed towards achieving a group goal and eliminating tendencies which lead to *frustration*.

Identification Features, the sum of an object's properties, basing on which one would identify that object as pertaining to a certain class. A person may distinguish and take account of I. F. both consciously and unconsciously. In the course of ontogenetic (see *Ontogenesis*) and functional development of perceptual processes (see *Perception*), one would continually distinguish new I.F. and this would ensure integral *identification* of complex objects that had not been previously perceived as a whole.

Ideomotor Act, the transition from the idea of a muscle movement to the realisation of this movement, i.e. the appearance of nerve impulses ensuring the movement as soon as the thought of it emerges. I.A's are involuntary, unconscious and, as a rule, have weakly expressed spatial characteristics. The principle of I.A. was discovered by the English physician, David Hartley, in the 18th century and later developed by his countryman, William Carpenter. Further research has shown that motions accompanying the process of imagining a movement cannot always be classified as involuntary, and that muscle contractions leading to particular movements can be meaningful. At present there are two points of view regarding the I.A. psychological mechanism. The first is based on Ivan Pavlov's notions that I.A's are controlled by effectory impulses emanating from certain cortical cells. The second view stems from the concept of a circuit regulation of movements (N.A. Bernstein). I.A's are controlled by feedback *signals* issued by the movement organs. *Sensibility* to muscle micromovements in I.A. that are imperceptible to an outside observer makes it possible to foretell the involuntary movement conceived by another individual.

Illusions of Perception, an inadequate reflection of the object perceived and its properties. Sometimes the term I. of P. is used to denote the very configurations of the *irritants* causing such inadequate perception. At present the most widely studied I. of P. are the illusory effects observed in a visual perception of two-dimensional contour images. These "optico-geometric illusions" consist of a seeming distortion of the metric proportions of the fragments of an image (see Fig. 2). The phenomenon of bright contrast is another class of I. of P. For instance, a grey strip against a light background seems darker than against a black background. There are many illusions of apparent movement: autokinetic movement (the chaotic movement of an objectively fixed source of light which is observed in total darkness); stroboscopic movement (the impression of a moving object where there is rapid consecutive representation of two immovable *stimuli* in a close space proximity); and induced movement (the seeming movement of an objectively fixed object in the direction opposite to the movement of the surrounding background). One can also regard illusions of a non-visual nature as I. of P. Such is, for instance, the illusion of Charpentier: of two objects of equal

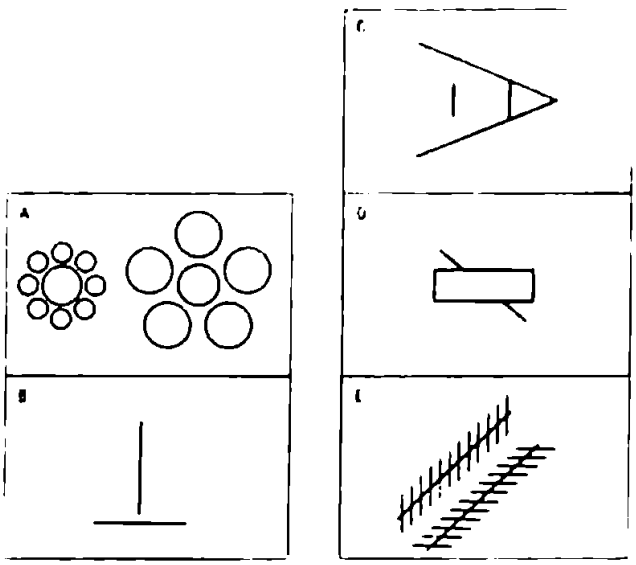


Fig. 2.

Some Geometric Optical Illusions

A. Though same in reality, two central circumferences seem to differ
B. Of two segments equal in length, the vertical one seems longer (horizontal-vertical illusion)
C. Two vertical segments are equal, but the right one seems longer (perspective illusion)
D. Segments of one oblique line seem mutually displaced
E. Parallel lines seem to converge

weight but different dimensions the lesser one seems to be heavier. There are also various *attitude* illusions studied in detail by Dmitri Uznadze and his pupils. Some I. of P. have a complex nature: for instance, in a state of weightlessness, unusual stmulation of the vestibule impedes the appraisal of the position of visual and acoustic objects. There is no common theory that can explain all I. of P. It is believed that illusory effects, as was shown by the German scientist Hermann Helmholtz, are the result of the work in unusual conditions of the same mechanisms of perception which in normal conditions ensure its *constancy*.

Image, a subjective picture of the world or its fragments, including the *subject* itself, other people, the spatial surroundings, and the temporal sequence of events. From the viewpoint of the Marxist theory of cognition, I. is a form of *reflection* of objective reality. In psychology, the concept of I. is used in several meanings. In addition to a broad interpretation synonymous to the concepts "reflection" and "*psyche*", I. is traditionally associated with preferentially perceptual (see *Perception*) forms of knowledge. For instance, in describing the development of *thinking* in a child, one would distinguish the stage of visual thinking, which differs from earlier and later stages in that it is based on visual *representations* and their transformations as a means for solving mental *tasks*. When studying ontogenetic development (see *Ontogenesis*), I. involves *interiorisation* of schemes of *action* with objects (Jerome Bruner, Alexei Zaporozhets, and Jean Piaget). In his works, the Soviet psychologist Alexei N. Leontiev advanced a hypothesis that the I. of the world is a multi-dimensional psychological formation, whose five "quasidimensions" include space-time coordinates and the "quasidimension" of *meaning*. The latter resultant may in turn be conceived, through corresponding mathematical processing (multi-

dimensional *scaling*, *cluster analysis*, etc.), in the form of diverse geometric models, and *subjective semantic spaces*. An important distinction between a "naive" and "critical" picture of the world, depending correspondingly on a commonsense or scientific approach to interpreting mental process, was made by representatives of *Gestalt psychology*. Detailed study of I. is the subject of *cognitive psychology*. A suggestion was made about the existence of a hypothetical neurophysiological structure, a "visual buffer" whose *activation* by sensorial information or evidence from long-term *memory* leads to the emergence of a visual I. Yet, the empirically revealed correspondence may be explained only genetically, by the origin of the inner plan of *activity* from real objective *actions*. The difference between the two types of I's may be evidenced by differences between their subjective distinctness, and also by the fact that the I's of representations never localise in the outer spatial surroundings, the only exceptions being the so-called eidetic images (see *Eidetism*) and true *hallucinations*, which are caused by some mental disorders. These distinctions are occasionally weakened in the altered state of *consciousness*, for instance, in dreams and drowsy states (hypnagogic I's) (see *Sleep, Hypnosis*). Conversely, pseudohallucinations are clearly distinguished from perceptual I's (Viktor Kandinsky).

Imagination, a mental process manifesting in: (1) construction of the *image* of the means and the result of the *subject's* objective *activities*; (2) development of a programme of behaviour when the *problem situation* is unclear; (3) production of images which do not programme, but substitute activity; and (4) creation of images according to the object's description. A major significance of I. is in that it allows to visualise the result of work prior to starting it, and thereby to orient man in the course of activity. Simulation by means of I. of a model of the final or intermediate product of labour helps its objective implementation. "At the end of every labour process, we get a result that already existed in the imagination of the labourer at its commencement" (Karl Marx, *Capital*, Vol. I, Progress Publishers, Moscow, 1974, p. 174). In effect, the fundamental distinction of human labour from the *instinctive behaviour of animals* is in that man conceives the anticipated result with the aid of I. I. is involved in any labour process, and is an essential aspect of any creative activity—the arts, designing, or science. In the course of activity, I. comes out in unity with *thinking*. The involvement of I. or thinking in the process of activity depends on the extent to which the problem situation is unclear, and on the sufficiency or insufficiency of initial information about the *task* in hand. If the initial data are unknown, the solution of the task is basically subordinate to the laws of thinking; however, if these data are hardly analysable, I. mechanisms begin to operate. Quite often, the same task may be solved both by means of I. and thinking. I. is valuable in that it allows to

make a decision in the absence of sufficient knowledge to solve the task. Yet, in this case, the ways for solving the task are often insufficiently exact, and this restricts I. I. processes are of analytico-synthetic nature, as also are the processes of thinking, *memory*, and *perception*. I's main trend is to transform memory concepts to ultimately ensure the creation of an a fortiori novel situation. I. mechanisms essentially transform *representations* to create new images based on already available ones. I. is a *reflection* of reality in novel, strange, unexpected combinations and associations. In I. representations are synthesised in various forms, viz. in agglutination, when qualities, properties, and parts of objects uncombinable in reality are actually combined; in exaggeration, when the object's size is intentionally enlarged or diminished, or when the qualities of its elements are changed; in accentuation, when the object's features are stressed; in schematising or smoothing out object's distinctions, and in revealing their similar features; and in typifying or distinguishing substantially recurring elements in homogeneous phenomena and their embodiment in concrete images. By degree of the implementation, one would distinguish passive and active I. Passive I. is characterised by the creation of images that are not materialised, or programmes that are either not implemented or altogether unimplementable. In this case, I. comes out as a substitute of activity, as its surrogate, by means of which a person would dismiss the need to act. Passive I. may be intentional or unintentional. Unintentional passive I. is observed in weakened activities of the mind, in impaired consciousness, in a half-sleepy state, and in *sleep*. Intentional passive I. creates images (fancies) unconnected with the *will*, which in fact could help translate them into reality. Prevalence in I. processes of fancies is indicative of certain defects in personality development. Active I. may be creative and reproducive. Creative I. arising in labour assumes that a person objectifies his own images in original and valuable products. Creative I. is an inseparable aspect of *creative activity* in engineering, the arts, etc. Reproductive I. is essentially based on the creation of various images corresponding to descriptions. I. is not always instantly actualised in practice. Quite often it takes the form of specific inner activities, whereby the person in question creates an image of some desirable future, i.e. indulges in day-dreaming. To dream of something is a requisite for transforming reality, a *motive* of activity whose final completion has proved delayed. Fantasy is a synonym for I.

Imitation, the act of following some example or model. I. occurs at various ages of individual development. Despite outward similarity, I. in various age groups conceals different psychological mechanisms. In infants, I. of adult movements and vocal sounds represents an attempt to establish an initial contextual contact. In preschool age, I. is a way to penetrate into the semantic structures of human activity.

It passes several stages and changes together with changes in the main activity at this age, viz., topical and role-playing games, in which the child would initially imitate adult characteristics simulated in a game and most open to him to only gradually start to imitate the aspects of behaviour that really reflect the meaning of a given situation. In teenagers, I. is designed to manifest outwardly (and sometimes also innerly self-identification with some specific significant personality (see *Significant Other*; *Referentiality*) or with a generalised stereotype of behavioural and personal characteristics (see *Stereotype Social*). In adults, I. comes out as an element of *learning* in certain types of professional activity (sports, arts, etc.).

Imitation by Animals, a specific form of training (see *Learning by Animals*) during communication, when one animal follows the example of another. There are instinctive I. by A., i.e. reciprocal stimulation (animals joining those feeding or birds taking wing) and imitational learning. In the latter case, innate behavioural forms would develop through vicarious learning (particularly in *ontogenesis*: imitation by young of actions of adult species). The topmost manifestation of imitational learning, i.e. imitational problem solving (merely through observation of another individual's actions, is seldom observed, mainly in experimental conditions. I. by A. is an important factor of *group behaviour*.

Immediacy Postulate, a proposition, according to which external *irritants*, by affecting psyche, unambiguously determine its manifestations and related *reactions* of the subject. I.P. is based on the following binomial scheme of psychological analysis which ignores factors determining that psyche: effect on the subject's receptor (perceptual) systems → responses (either subjective or objective) caused by that effect. In the history of psychology, I.P. took on different forms, viz., in the principle of "closed natural causation" (Wilhelm Wundt), according to which mental effects are essentially based only on psychological causes, and the principle of "psychophysical interaction" (Gustav Fechner), which claims that an external physical effect would unambiguously determine the *sensation* caused thereby. I.P. is most clearly pronounced in the *behaviourist* central scheme (stimulus → reaction). Acceptance of I.P. leads either to ignoring the subject's activity, or to its explanation by idealistically interpreted factors: *apperception*, *intention*, etc. In Soviet psychology, I.P. is overcome within the framework of the theory of *attitude* and the activity approach.

Implicit Theory of Personality, (1) the totality of chiefly unconscious suppositions about *motives* of behaviour and personality structure; (2) the totality of notions regarding the link between individual personality traits which form a general impression about a person quite often on the basis of sparce information concerning his actions and deeds. Having discovered one or several individual psychological

traits in another person, the subject automatically ties them in with other traits incorporated in his own I.T. of P. and concludes that these traits must be typical of the other person. Despite its unscientific basis, the I.T. of P. exists as a product of common sense influencing the perception, understanding and appraisal of one person by another and sometimes serving as a socio-psychological basis for *bias*. In different cultures I.T's of P. vary, which can affect understanding between their representatives. The I.T. of P. problem is studied by methods of *psychosemantics*. Synonyms of the term "I.T. of P." are "naive concept of the personality" and "the common sensical theory of the personality".

Impression (among animals), a specific form of *learning by animals*. See *Imprinting*.

Imprinting, a special form of learning (see *Learning by Animals*) among higher vertebrates which fixes the distinctive signs of the objects of some innate behavioural actions of the parents (being simultaneously the carriers of the typical signs of the species), brothers and sisters, food objects (including animal-victims), etc. I. occurs chiefly at the early stages of post-natal development and takes place only within a definite, usually very limited ("sensitive", "critical") period of time. The process of I. happens very quickly (often with the first encounter with the object of I.) and without outside reinforcement. The result of I. is, as a rule, irreversible. I. ensures for animals the protection of the descendants (the following of the parents by children), recognition of parents, members of the community, relatives, future sexual partners, landmarks, etc.

Inclinations, innate anatomic and physiological peculiarities of the *nervous system*, the *brain* making up a natural basis for the developments of *abilities*. I. are not specific for the concrete content and forms of *activity*; they are multifarious. Yet it would be wrong to believe that I. are absolutely "neutral" as regards future abilities. Thus, the peculiarities of the visual *analyser* would have a sure effect on the abilities involving the participation of this analyser, while the peculiarities of the brain's speech centres would have a more definite effect on the types of activity connected with the speech abilities. So, individual I. are somewhat selective and vary in relation to various types of activity. There are considerable individual distinctions in the structure of men's brain tissue, but the role of such morphological distinctions as conditions for the development of mental faculties remains unclear. Soviet psychology began to obtain concrete scientific data on I. following the study of the innate properties of the nervous system and their significance for individual psychological distinctions (the school of Boris Teplov).

Individual, (1) a *man* as individual natural being, a Homo sapiens, a product of the phylogenetic and ontogenetic development, as a unity of the innate and the acquired (see *Geno-*

type; *Phenotype*), as a carrier of individually peculiar traits (*inclinations*; *drives*, etc.); (2) an individual representative of a community of men; a social being transgressing the bounds of his natural (biological) limitations, using implements, *signs* and through them influencing his own *behaviour* and psychic processes (see *Higher Mental Functions*; *Consciousness*). Both meanings of the term "I." are interconnected and describe man as a separate and specific being. The most general characteristics of I. are: the integrity of psychophysiological organisation; stability in interaction with the outside world; *activeness*. The indication of integrity points to the systematic nature of links between multiform functions and mechanisms realising vital relations of I. Stability determines the preservation of the basic attitudes of I. towards reality, at the same time presupposing the existence of elements of plasticity, flexibility and variability. I.'s activeness ensures his ability to change and dialectically combines dependence on a *situation* with overcoming its immediate impact.

Individual Psychology, a trend in *psychoanalysis* which is an offshoot of *Freudianism* and was developed by Alfred Adler. I.P. proceeds from the supposition that the structure of the *personality* (individuality) of a child is formed in early childhood (before 5 years) as a kind of a special "life style" which predetermines his entire subsequent mental development. Because of the underdevelopment of his body organs, the child experiences a feeling of inferiority and the *goals* he forms are an attempt to overcome this feeling. When these goals are realistic, the personality develops normally; but when they are unreal, he becomes neurotic and asocial. Early childhood is the period when a conflict arises between the inbred social feeling and the feeling of inferiority (see *Complex*) which brings into action the mechanisms of compensation and supercompensation. This engenders the striving for personal power, supremacy over others and deviation from the socially valued norms of *behaviour*. The task of *psychotherapy* is to assist the neurotic (see *Neurotism*) subject in realising that his *motives* and goals do not correspond to reality so that his urge to compensate his inferiority can find expression in creative efforts. This ideas of I.P. gained currency in the West not only in the psychology of personality but also in *social psychology*, where they were used in group therapy methods (see *Psychotherapy, Group*). I.P. also influenced the adherents of *neo-Freudianism*. The methodological weakness of I.P. lies first of all in the fact that it defends the concept of the predestination of mental development, which is conceived teleologically as achieving the goals originating in the depths of the personality.

Individual Style of Activity, a general characteristic of the individual psychological peculiarities of a person which are formed and revealed in his *activity*. I.S. of A. is dependent on the specifics of upbringing, the psychological qualities of the subject determined

by the properties of his nervous system, and on the peculiarities of his inclusion into constantly repeated standard *situations* (in production, etc.). The study of I.S. of A. makes it possible to forecast with great probability the effectiveness of the activity (Yevgeni Klimov).

Individuality, a human being characterised by socially meaningful distinctions from other people; the distinction of the *psyche* and the *personality* of the individual, its idiosyncrasy. I. is revealed in the traits of man's *temperament*, *character*, in the specificity of interests, the properties of the perceptual processes (see *Perception*) and *intellect*, needs and capabilities. The anatomic physiological inclinations which are transformed in the process of *education* having a socially conditioned nature constitute the requisites for forming man's I., which gives rise to a wide variety of I. manifestations.

Induction, the movement of knowledge from singular assertions to general postulates. I. is closely connected with *deduction*. Logic treats I. as a kind of *inference* discerning perfect and imperfect I. Psychology studies the development and deviation from inductive reasoning. The movement from isolated to general knowledge is analysed in its determination by all mental processes, the structure of thinking as a whole. Experiments with the formation of artificial *concepts* serve as an example of experimental studies of inductive reasoning.

Induction of Nervous Processes, the emergence of a nervous process with an opposite valence following the existing process (consecutive induction) or its spatial limits (simultaneous induction). I. of N.P. was described by the English physiologist Charles Sherrington (1906). It is positive if the initial process is inhibition followed, according to the laws of I. by exitation, and it is negative if this correlation is reversed. The notion was widely used by Ivan Pavlov to explain the regularities of higher nervous activity.

Inductor, the subject addressing a message to the *recipient*. Synonym—communicator.

Infantilism, Personal, preservation in *psyche* and *behaviour* of an adult of traits typical of a child's *age*. The individual afflicted by infantilism (infantile) is distinguished by the immaturity of his emotional-volitional sphere even with a normal or accelerated level of physical and mental development. This is reflected in a lack of independence in decisions and actions, a sense of vulnerability, a low capacity for self-criticism, in heightened demands on others regarding care of him/her, and in various compensatory reactions (fantasies replacing real actions, *egocentrism*, etc.).

Inference, a logical form of thinking (see also *Concept*; *Judgement*). I. is characterised by a process of logical reasoning by which a specific conclusion necessarily follows from a set of

general premises. I. classifications are developed by logic, whereas psychology examines the developmental conditions of deductive (discursive) reasoning and its distorted forms. For instance, the former is studied by psychology to assess the extent to which an individual trusts certain syllogistic premises and the conclusions derived therefrom.

Inferiority Complex, a central notion in Alfred Adler's *individual psychology* according to which, due to "defective bodily organs", a sense of his own inferiority is formed in a child. The way of overcoming this complex determines the individual's "life style".

Informant, the subject included in an experiment and informing the experimenter (directly or through a medium, by a written answer) of the peculiarities of his interaction with the object.

Ingroup Favouritism, the desire to somehow favour members of one's own group as compared to members of another group. I.F. may show both in outwardly perceived behaviour in various situations of social interaction and in social perception processes (see *Perception, Social*), for instance, in forming attitudes, opinions, etc. relating to members of one's own and other groups. I.F. is the most widespread result of *intergroup discrimination*, albeit not the only one. The degree of I.F. may be a characteristic of intergroup perception and intergroup interaction. Unlike some foreign authors who postulate that I.F. is essentially primordial, universal and inevitable in all conditions of intergroup interaction, Soviet psychologists have theoretically and experimentally shown that this phenomenon is secondary and dependent on a number of activity and social factors, and, notably, not typical of *collectives*.

Inhibition, an active process inseparably associated with excitation and leading to delayed activity of nerve centres or functional organs. In the former case, I. is called central, and in the latter peripheral. Peripheral I. was discovered in 1840 by Ernst Weber and his brother Edouard Frederic, who obtained delayed systole in rhytmic stimulation of the vagus nerve. Central I. was discovered by the Russian physiologist Ivan Sechenov in 1863. This had a profound effect on the study of not only neurodynamics, but also regulation of mental processes. For a long time, the nature of I. remained obscure. Physiologists initially identified it with passive state or exhaustion of corresponding cells. At present, two different ways of cell activity inhibition have been revealed: I. may either result from activation of specific inhibitory structures or be caused by preliminary cell stimulation. I. is an essential component of integrative, coordinated activity of the *nervous system*. The Russian physiologist Ivan Pavlov distinguished the following two basic types of cortical I. in higher nervous activity, namely, external or unconditioned

I., and internal or conditioned I., differing from each other in origin and development. These types of I. allow the body to selectively respond to environmental effects and to adequately distribute such responses in time; in other words, together with excitation processes they provide the body's optimal adaptation to continually changing environmental conditions.

Inhibition, Conditioned, a variety of cortical *inhibition*, which occurs in neural structures directly involved in developing a *conditioned reflex* when the conditioned signal is not reinforced by an unconditioned stimulus. The Russian physiologist Ivan Pavlov distinguished four types of I., C.: (1) extinctive inhibition, which occurs at extinction of a conditioned reflex; (2) differentiated inhibition, which occurs when one stimulus is continually reinforced by an unconditioned reflex, and the other stimuli are not; (3) conditioned inhibition, which develops when a given isolated stimulus can still cause a response; and (4) delayed inhibition, which occurs when an unconditioned stimulus is manifested some time after the conditioned stimulus.
Interaction of I.,C. and excitation plays a highly important role in the adaptation of living organisms; it also ensures active functioning of the brain. Successful development of both processes in ontogenesis helps form more complex types of generalisation in children. In old age, all types of I.,C. are difficult to develop. For instance, a switch-over from one kind of activity to another one is inhibited.

Inhibition, Proactive, an integral neural process that delays *learning* because the replies relating to the preceding elements of the material inhibit answers relating to its subsequent elements. The term I., P. was suggested in 1928 by the French psychologist Marcel Foucault, who relied on the concept of internal (conditioned) inhibition introduced by the Russian physiologist Ivan Pavlov. Pavlov distinguished it along with external inhibition (inhibition of given activity by *orientating reflex* to some external stimulus) and protective inhibition (which protects nerve centres from overexhaustion). Internal inhibition is observed at extinction of *conditioned reflexes*, and also when they differentiate in the forming of delayed and trace conditioned reflexes. The effect of I., P. on the reply is the stronger the greater the volume of the material learned prior to a given reproduced element is and the more complex and yet identical with the current was the preceding activity. Sometimes, psychologists use the term progressive (internal) inhibition as a synonym for I., P.

Inhibition, Retroactive, an integral neural process that delays learning because the replies to subsequent elements of the memorised material produce an inhibitory effect on answers relating to the preceding elements; in other words, the individual forgets the previous material under the influence of subsequent memorisation. The term I.,R. was suggested in 1928 by the French psychologist Marcel Foucault.

Numerous investigations have established that the effect of I.,R. on the reply becomes stronger with more numerous elements memorised after the element to be reproduced, and also with subsequent activity more complex than and similar to the one being reproduced. The term "regressive (internal) inhibition" is sometimes used as a synonym for I.,R.

Inhibition, Social, see *Social Facilitation.*

Inhibition, Unconditioned, a variety of cortical *inhibition.* Unlike *conditioned inhibition,* (see *Inhibition, Conditioned*), I.,U. occurs spontaneously and involves: (1) inductive (external) inhibition, i.e. urgent termination of conditioned reflex activity under alien stimuli; its biological significance is in that it mainly ensures *orientating reaction* to a sudden stimulus; and (2) protective inhibition occurring under stimuli that excite corresponding cortical structures to a performance limit higher than that inherent in them and thereby provide a real possibility for retaining or restoring that performance.

Insight, a sudden *comprehension* (without use of previous experience) of important relationships and the structure of the *situation* as a whole which makes it possible to find an intelligent solution to a problem. The concept of I. was introduced by *Gestalt psychology.* In the work of the German psychologist Wolfgang Köhler on the instinct of anthropoid apes, it was contrasted with the behaviourist (see *Behaviourism*) notion of a gradual and "blind" *learning* by the *trial and error* method, while in the studies of the German psychologists Max Wertheimer and Karl Duncker this concept is also applied to describe the thought processes of man and is interpreted as a special act separate from other intellectual operations. A descriptive rather than explanatory importance should be attached to the concept of I. The scientific interpretation of I. is connected with the recognition of the decisive importance of understanding this phenomenon, its "preparation" in previous behaviour and activity, and of the role played by the organisation of the understanding of the situation, particularly as applied to man, with the help of specific sociohistorical means (*language,* various schemes, etc).

Inspiration, a state of specific tension and upsurge of the spirit, of human creative excitement leading to the arisal or realisation of some scheme and idea for producing a work of science, art, or technology. I. is characterised by man's elevated overall *activeness,* unusual productivity of his *activities,* awareness of readily accomplished creative work, experience of deep emotional involvement in creative work. Apparent unawareness of the creative process during I. results from maximal awareness of the creative work itself; of extreme clarity of *consciousness;* of peculiar influx and clearing up of thoughts and images; and of extraordinary acuteness of *memory, atten-*

tion, and passionate *will* aimed at implementing the idea. Despite all its apparent spontaneity, I. is generally the result of intense preliminary work.

Instinct, an evolutionally established, genetically determined predisposition of a representative of a biological species for carrying out a stereotyped set of biologically purposeful *actions* which make it possible to obtain certain results without anticipating them and without preliminary instructions on how to achieve them. The term "I." is commonly used to denote the most conservative and stereotyped innate *automatisms* (in animals) and little-realised, unconscious aspects of the purposeful *behaviour* against the background of a strong *affect* (in man). The notion of I. is closely connected with the idea of existence of inherited programmes of behaviour typical of a particular species which is aimed at satisfying the vital needs of the organism. It can be interpreted from three viewpoints: (1) its genetic basis; (2) its neurophysiological mechanisms; and (3) the totality of its behavioural manifestations. Historically formed in antiquity (Chrysippus) as a kind of antithesis to the notion of *intellect*, by the early 20th century the notion of I. had come a long way in its development and concrete definition in the works of philosophers (Blaise Pascal, Etienne Condillac, Herbert Spencer), biologists (Jean Lamarck, Charles Darwin, Jacques Loeb), clinicists (Pierre Janet, Sigmund Freud), physiologists (Charles Sherrington, Ivan Pavlov), psychologists (William Mcdougall) and naturalist-zoologists (C. Lloyd-Morgan, W. A Wagner). The contradictoriness and complexity of I. is explained by the fact that from the very beginning this notion fused a wide gamut of future key scientific concepts concerning behaviour—*motive*, *image*, *action* and their derivatives and components. Moreover, this fusion took on a form which made it extremely difficult to make their separate experimental control. For that reason, untill the end of the 1950s the concept of I. for the most part, was elaborated in two, relatively isolated, directions—psycho-analysis (Sigmund Freud and his followers) and comparative ethology (Konrad Lorenz, Nikolaas Tinbergen). On the basis of vast empirical material, these two groups isolated in the I. structure such functional elements as "final acts", "complexes of fixed actions", "substituting" forms of activity, "key stimuli" and "critical periods" of their "imprinting" (in a number of aspects consonant with the ideas of Ivan Pavlov and N. A. Bernstein). This played an important role in overcoming behaviourist trends. At the same time, the narrow phenomenologism, and, in a number of cases an outright reactionary character of the methodology of I. investigators (lack of statistics and control, attempts to ascribe to I. a monopoly role in human behaviour, claims on socio-biological generalisations, and so on) could not but erect certain barriers for assimilating the positive aspects of these achievements. The successes scored in endocrinology, behavioural genetics, anthropology, behavioural ethology and comparative phy-

siology of the sensor systems have played a major part in the interdisciplinary integration of the notions on the nature of I. The discovery in the evolutionally most ancient, sub-cortex sections of the hypothalamic zones of "pleasure" and "pain" (James Olds, José Delgado), as well as recticular centres controlling the functions of breathing, sleeping, wakening, satisfying thirst and a number of other integral instincts of similar acts (Horace Magoun, and others), has also contributed to the extension of the knowledge about I. As a result of the synthesis of these data in modern *psychophysiology* (Pyotr Anokhin, Pavel Simonov), a general idea has been formed of I. as a complex, species-determined hierarchically-organised mechanism of "discharging" the dominant biological motivations in which, with the development of a new cortex, the boundary between the innate and the acquired is becoming ever more relative.

Instinctive Behaviour of Animals, the totality of the components of behavior serving as a basis of animal activities inherited, inbred and common for all representatives of the species which has been formed in the process of development of a particular species, i.e. in *phylogenesis*. In the process of individual development, i.e. in *ontogenesis*, I.B. of A. is formed in combination and interaction with the processes of learning (see *Learning by Animals*), does not need *exercise*, is preserved without periodical *reinforcement* and is notable for stability, limited individual changeability and autonomy in relation to the short-term changes in the animal habitat. The relative "expediency" of I.B. of A., directed towards the survival of the species and the continuation of the genus, has developed as a result of natural selection. Instinctive acts forming I.B. of A. include sets of precisely coordinated movements, poses, sounds, skin reactions (secretion, changes of coloration), etc. The adaptability and efficiency of I.B. of A. is secured by "innate releasers"—neuro-sensor systems tuning in the *analysers* to the perception of "key stimuli", which is conducive to their recognition, integration of the corresponding *sensations* and desinhibition (or *activation*) of the nerve centres involved in this act. The key stimuli are simple signs of the biologically meaningful animals, plants, objects of inanimate nature (their form, size, movement, colour, smell, etc.) or space relationships, correlation of the parts, relative size, etc.).

Instrumental Actions of Animals, a specific form in which animals handle objects when one object (instrument) works on another object or animal. This results in mediated (by the instrument) physical relationship between the animal and the affected object. I.A. of A. are observed in few insect species, in birds, and in mammals (slightly more often in apes, for instance, when the latter smash food object with a stone, comb themselves with some foreign object, establish contact by means of some object, or throw an object in the direction of an enemy). Sometimes, the object is prelimin-

arily adapted for use as an implement. I.A. of A. of highly developed apes contributed to the origin of labour activity in ancient humans. In laboratory conditions, I.A. of A. are used to study animals' psychic capabilities, for instance, those pertaining to their intellectual faculties.

Integrity of Perception, a property of *perception* consisting in that every object and, moreover, spatial objective situation are perceived as a stable systematic whole, even if some parts of that whole are unobservable (at the moment, say, the back side of an object). The problem of I. of P. was initially studied experimentally by representatives of *Gestalt psychology*. However, they presented it as the original Gestalt property determined by laws of consciousness. Soviet psychology believes that I. of P. reflects the integrity objectively inherent in the perceived. The *image* that forms during the reflection of reality is highly redundant, meaning that a given totality of image components contains information not only about itself, but also about other components, and about the image as a whole. For instance, an observer who in certain perceptual conditions could see a passer's-by head and shoulders, would perceive the posture of his arms, torso, and even type of gait. The distinctness of that perception would depend on anticipation of elements that cannot be seen at the moment.

Intellect, a relatively stable structure of the mental abilities of the individual. A number of psychological concepts of I. identify it with a system of mental *operations*, with the style and strategy of *problem* solving, with the efficacy of the individual approach to a particular *situation* requiring cognitive activity combined with the *cognitive style*, etc. Western psychology usually interprets I. as a bio-psychological adaptation to the existing life circumstances (Willian Stern, Jean Piaget). The first attempts to study the productive, creative components of I. were made by representatives of *Gestalt psychology* (Max Wertheimer, Wolfgang Köhler) who elaborated the concept of *insight*. In the early 20th century, French psychologists Alfred Binet and Theodore Simon suggested that the level of mental giftedness should be established by special tests (see *Intelligence Tests*). Their works initiated the currently widespread, pragmatic interpretation of I. as an ability to tackle specific tasks, to effectively take part in social and cultural life, and to effectively adapt oneself. In their interpretation, they put forward the idea of the existence of basic I. structures independent of any cultural influences. To improve diagnostic methods, various studies have been made (usually by the *factor analysis*) of this structure. At the same time, different authors single out varying quantities of the basic "factors of I."—from one to two to 120. This fragmentation of I. into a multitude of components impede its comprehension as an integral whole. Soviet psychology proceeds from the principle of the integrity of I. and its connection with *personality*. Much attention is paid to the study of inter-

relationship between practical and theoretical I., and its dependence on the emotional and volitional personality traits. The unsoundness of racist assertions about inbred differences between various nations and social groups was exposed. Proceeding from the Marxist-Leninist methodology, Soviet psychologists recognise the dependence of human mental abilities on the socio-economic conditions of life. The determination of the content of I. and the peculiarities of the methods of measuring it depend on the nature of the corresponding socially meaningful sphere of activity of the individual (learning, production, politics, etc.). The term "*artificial I.*" is being used more and more frequently due to the successes of the scientific and technological revolution—the development of cybernetics, the theory of information, and computer technology. Comparative psychology is dealing with the *intellect of animals*.

Intellect of Animals, the highest form of mental activity of animals (monkeys, apes and other vertebrates) characterised by the reflection of not only the object components of the environment but also their relationships and connections (situations). I. of A. is also marked by non-stereotyped solutions of complex problems by various means of transfer and use of different operations mastered as a result of previous individual experience. The transfer occurs due to both the similarity of objects and the similarity of relationships between them. The groundwork for the solution of a problem is laid by specific, preliminary actions divorced from any immediate biological meaning, sometimes as a search for or preparation of a tool (see *Instrumental Actions of Animals*). I. of A. is practically indivisible from complex skills (see *Learning by Animals*) and is rooted in intensive and variable manipulation [see *Manipulation (by Animals)*], as well as a broad sensory (visual) generalisation. I. of A. is revealed in thinking, which, in animals, is always of a sensory-motor nature, is relevant to the object and finds expression in practical analysis and synthesis of relationships to be established between various phenomena (and objects) directly perceived in a specific situation. It is entirely biologically governed—the fact which determines its qualitative distinction from human thinking, with even anthropoid apes lacking abstract conceptual thinking and comprehension of basic cause-and-effect links.

Intelligence Quotient (IQ), relation of the so-called mental age (*MA*) to the real, chronological age (CA) of a given person according to the formula:

$$IQ = \frac{MA}{CA} \quad 100\%.$$

The mental age is determined by the results of *testing* with the aid of one of the intelligence *scales* (see *Intelligence Tests*). The majority of diverse tests included in intelligence scales comprise tasks the fulfilment of which implies the mastery of logical, logico-perceptual and arithmetic *operations*, general level of information, orientation in practical situations, voluntary *memory*,

etc. When constructing age intelligence scales, a psychologist, guided by experience and intuition, selects tasks which by the material they include (terms, notions, *graphic depictions*, etc.), and nature of the stimulated *mental actions* should be solvable by the individuals of the ages embraced by the scale in a given social community. This is usually experimentally tested on representative age samples. The procedure of obtaining the *IQ* is as follows. First the subject is given tasks which correspond to an age a year earlier than his own; the idea is to obtain from him, following a "lowering" age scale, five correct answers in succession. In this way the intellectual "base age" is recorded. Further he should be set tasks moving "upward" on the scale until five incorrect answers in succession are received. The test ends with this. Then "base age" tests score is added to the score of correct replies. A special table is used to determine to which mental age the obtained result corresponds. After this it is calculated according to the *IQ* formula. In interpreting an *IQ* we should bear in mind that this quotient does not measure any mental or intellectual ability that could be characteristic of all social communities; still less founded is the claim that it could be used to diagnose some inborn or hereditary "general giftedness".

Intelligence Tests, a technique of *psychodiagnosis* that have become widespread in the United States and some other Western countries and are designed to reveal the extent to which subjects have mastered actions utilising mainly verbal, numerical and graphic material. The origin of I.T. is usually associated with a series of tests devised by the French psychologist Alfred Binet and his colleagues. Test results are often expressed in intelligence quotients. At present, many investigators are inclined to infer that I.T. establish the degree to which an individual has been brought within the reach of the culture of a social community represented in the I.T. and in the testing procedure *per se*. In determining the actions to be performed and the material to be used, the I.T. authors actually proceed from their common idea of the demands made by the social community to which they belong as to the intellectual development of the "average man" from that community. At the same time, they view I.T. simply as a premise for successful adjustment to those requirements. Interpretation of I.T. results has become a controversial issue in Western Europe and the United States, since subjects belonging to dominant classes generally show higher results than those from exploited classes and oppressed ethnic groups. Reactionary psychologists claim that these distinctions are allegedly genetically predetermined. I.T. are also used in clinical practice for general and differentiated diagnosis of persons with anomalous mental development.

Intent, orientation of *consciousness, thinking* towards a certain object.

Intention, a conscious determination to complete an *action* in conformity with

a planned programme aimed at achieving a presumed result. When one expects the fulfilment of complex, lengthy, uncustomary or strenuous actions, I. would come out as an element of inner preparation to achieve them (see *Will*).

Interaction of Analysers, a manifestation of the unity of the sensorial sphere. Changes in the functional state of one *analyser* as a result of stimulation by another have been studied most fully. Such phenomena were described as early as the 18th century by the Russian scientist Mikhail Lomonosov, who looked for relevant explanations in physics. Abundant experimental material on I. of A. accumulated by different researchers was systematised by the Soviet physiologist Sergei Kravkov (1948). I. of A. also shows in joint work of analysers that provide the subject with information on aspects of the surrounding world about which no single analyser itself affords information, e.g. binocular assessment of an object's remoteness resulting from the joint work of the visual and proprioceptive analysers. In pathology, I. of A. may be disturbed so as to reflect the disintegrated work of the central nervous and sensory systems. Revealed regularities in disturbed I. of A. are used to diagnose diseases. Peculiar forms of I. of A. are used in the arts (see *Synaesthesia*).

Interactionism, one of the most popular theories in modern Western *social psychology* reducing socio-psychological processes and phenomena to the impact of one person on another and searching for an explanation in it of the essence, origins and development of *interpersonal relationships*. I. is based on the works of the American sociopsychologist George Mead. In I., social interaction is understood exclusively as a direct *communication* (2) ("exchange of symbols") which is distinguished by the ability of man to imagine how he is perceived by a partner in *communication* (1) (an ability to "take the *role* of another") or a *group* (a "generalised other"), and to correspondingly interpret the situation and construct his own actions. From the viewpoint of I., *personality* develops in the course of interaction with other people in society which is interpreted as a system of direct communications, the structure of the personality containing the components ensuring his *activeness*, as well as control over it according to social norms, the roles and social attitudes of the interacting parties. The basic philosophic and methodological shortcomings of I. stem from the psychologisation of the development of society and social relations, which are reduced to face-to-face communication and interpersonal relations. The latter are examined in isolation from the content of activity and regardless of their socio-historical conditionality. The emotional aspects of human interaction are ignored as well.

Interest, a form of the manifestation of the cognitive *need* securing the *orientation* of a *personality* towards realising the *goals* of *activity*, thus facili-

lating orientation and familiarisation with new facts, a more comprehensive and profound reflection of the reality. Subjectively, I. manifests itself in the emotional tenor which colours the process of cognition, in *attention* paid to the object of I. Satisfaction of I. does not extinguish it but leads to the emergence of new I's corresponding to a higher level of cognitive activity. In the dynamics of its development, I. can turn into a *propensity*, as a manifestation of the need for carrying out the activity calling forth I. There is a distinction between an unconscious I. provoked by the attractiveness of an object, and a conscious I. in an object regarded as a means of attaining the goal of activity. The steadiness of I. is reflected in its duration and intensity. This steadiness is confirmed by the surmounting of obstacles in the performing of an activity which, in itself, does not excite I., but whose performance is a condition for the attainment of the person's activity of interest. In the final count, the broadness or narrowness of I. is determined by its content and meaning for the personality.

Interference, the deterioration of the *retention* of memorised material as a result of the impact (superimposition) of other material with which the subject operates. I. is studied within the framework of research into *memory*, the processes of *learning* (in connection with the question of *skill*). A distinction is made between *retroactive* I. and *proactive* I., depending on the sequence of memorised and interfering material. Depending on the nature of interfering material, researchers identify *verbal* I., motor-acoustic I., visual I., etc. Experiments dealing with the interfering impact of one material on another reveal a deterioration either in span or quality of the material reproduced, or an increase of the time needed to solve the problem as is the case in *selective* I. The concept of I. underlies a number of psychological theories on *forgetting*. The prevalent point of view explains I. as proceeding from the reflex theory of Ivan Pavlov. According to the French psychologist Marcel Foucault (1928), the interfering impact of material on responses is caused by *progressive* (for proactive I.) or *regressive* (for retroactive I.) *inner inhibition*.

Interference, Proactive, a phenomenon of mnemonic activity in which the retention of material being learned is weakened under the impact of previously assimilated (interfering) material (see *Interference*). I., P. increases with the growing degree of learning of interfering material and the expansion of its volume, as well as with the growing degree of similarity between the material being learned and the interfering material. I.,P. is revealed in experiments by comparing the results of reproduction (or repeated learning) by experimental and control groups.

Interference, Retroactive, the deterioration of the retention of previously learned material caused by the learning of, or operation with, subsequent (interfering) material (see *Interference*). It

is established that the relative magnitude of I.R. decreases with the attainment of a stable criterion of assimilation of the initial material. I.R. increases with the growing similarity between assimilated and interfering material and reaches its highest level when these materials coincide. With the growth of the volume of memorised material and a constant volume of subsequent material I.R. gradually decreases, while with a constant volume of memorised material and a growing volume of subsequent material I.R. increases. I.R. is determined by use of methods similar to those employed in measuring proactive interference (see *Interference, Proactive*), that is by comparing the results of reproduction (or repeated learning) in experimental and control groups.

Interference, Selective, a phenomenon of mnemonic (see *Memory*) activity resulting in the retardation of an answer to a question stemming from an involuntary influence on it of the meaning of the word (see *Interference*). I.S. vividly displays itself in the solution of the problem of identifying the colour of the letters of a particular word, especially when this word is the name of the colour. Similar effects are observed in many other cases: for instance, when it is necessary to answer whether the words "low" or "high" are pronounced in a high or low voice; when it is necessary to name the picture of an object which bears the inscription of this or another object, etc. The I.S. phenomenon is used in the study of the processes of *comprehension*.

Intergroup Discrimination, establishment of differences between one's own and another *group*. This process frequently acquires a clearly defined evaluative colouring inherent in intergroup perception (see *Perception, Intergroup*) as a whole. In certain conditions intergroup differences may be deliberately stressed and exaggerated. The most widespread result of I.D. is the tendency to establish positively valued differences in favour of one's own group (see *Ingroup Favouritism*), although examples of a reverse tendency are also quite frequent, i.e. establishment of positively valued differences in favour of some other group. In its extreme expression the former tendency may result in the appearance of tension and hostility in intergroup relations, the latter—in a weakening of intragroup ties, devaluation of intragroup values, destabilisation and disintegration of the group as such. We should distinguish between I.D. as a psychological phenomenon, on which the cognitive mechanisms of identification and differentiation are based, and I.D. as a social phenomenon which, contrary to the assertions of a number of bourgeois authors, is determined not by psychological, but by social, economic, political and other factors.

Interiorisation, the formation of internal structures of man's *psyche* owing to the assimilation of the structures of external social *activity*. The notion of I. was introduced by French psychologists Pierre Janet and Henri Wallon, the Swiss psychologist Jean Piaget.

I. was similarly interpreted by the representatives of symbolic *interactionism*. Concepts similar to I. are used in *psychoanalysis* for explaining how in *ontogenesis* and *phylogenesis*, under the impact of inter-individual relations "growing" into the structure of the psyche, the *unconscious* (individual or collective) is being formed, which, in its turn, determines the structure of *consciousness*. Soviet psychology interprets I. within the context of the Marxist understanding of psyche, as the transformation of the structure of object-oriented activity into the structure of the internal consciousness. I. should be distinguished from any forms of receiving sign information from the "outside", processing and storing it "inside" the psyche (*perception* and *memory*).

Interpersonal Choices, Motivation of, a relatively stable structure of *motives* for choosing a partner for *communication* (1) and *joint activities*, which forms the basis of interindividual preferences. When studying I.C.,M. attention is concentrated not on this or that character of sociometric or referentometric choices in a *group* (see *Sociometry; Referentometric Method*), but on their inner foundations as a link mediating choices and group differentiation. An analysis of I.C.,M. provides an opportunity to obtain corresponding data (indices) by correlation of a series of rank-ordered interpersonal preferences made by the subject, with his ranging of group members by various bases.

Interpersonal Interaction, see *Interpersonal Relations.*

Interpersonal Relations, subjectively experienced ties between people, which are objectively manifested in the nature and types of interpersonal interaction, i.e. mutual influences in the process of individuals' *joint activities* and *communication* (1). I.R. are a system of attitudes, orientations and expectations of group members with respect to each other, which is determined by the content and organisation of joint activities and *values*, on which human *communication* (1) is based. Moreover, there may be dissonance between the subjectively experienced and objectively existing ties of an *individual* with other people. In groups with different development levels (see *Level of Group Development*) I.R. are distinguished not only as to quantity, but also as to quality. Thus in a *collective* they comprise a complex hierarchical structure, which develops along with its inclusion in socially significant activity. The experimental study of I.R. is implemented by social psychology with the aid of special techniques (see *Sociometry; Referentometric Method; Methods of Personality Study*).

Intervening Variables, a concept introduced by *neobehaviourists* to overcome the limited interpretation of behaviour as a process reduced to the formula "*stimulus—reaction*". I.V. were understood to be psychological components ("meaning", "goal", "motive", "cognitive map", etc.) inaccessible to direct observation and playing the role

of mediation between the stimulus (as an independent variable) and the reaction (as a dependent) variable). In addition to Edward Tolman's purely psychological interpretation of I.V., Clark Hull advanced a theory about their presence in the organism in the form of factors accessible to physiological analysis.

Interview (in psychology), a means of obtaining socio-psychological information with the help of verbal questioning. It is possible to discern three major stages in the history of I.: (1) the application of I. in *psychotherapy* and *psychotechnics* which has subsequently led to the establishment of psychological consultation services; (2) the use of I. in specific socio-psychological research when, for the first time, there arose a problem as regards the *validity* of various methods of conducting I. and the validity of the information received; (3) the present stage is characterised by the coordination of practical, theoretical and methodological problems of I. for applying it as a specific method of obtaining information on the basis of *verbal communication* (2). There are two kinds of I.: free (not limited by subject and form) and standardised (close in form to a *questionnaire* with the questions put in private). The boundaries between these two kinds of I. are quite mobile and depend on the complexity of the problem, the aim and the stage of investigation. The degree of freedom of the participants in I. is determined by the availability and the form of questions; the level of the information received—by the content and the complexity of the answers received. The interviewer may find himself in one of the following situations: (a) the respondent knows why he is going to act in a particular way; (b) the respondent is lacking information on the reasons behind his actions; (c) the I. is aimed at obtaining symptomatic information, although it does not seem so to the respondent. One or another of these situations determines the use of various methods of conducting I. In the first case it is sufficient to resort to an orderly, purposeful questionnaire. The other two situations require methods involving the respondent's cooperation in the search for necessary information. The pertinent examples are clinical (see *Interview, Clinical*) and diagnostic (see *Interview, Diagnostic*) interviews.

Interview, Clinical, a method of therapeutic interview while providing psychological assistance. In *psychiatry, psychoanalysis* and *medical psychology* I's,C. are used to assist the patient in realising his inner problems, conflicts and hidden *motives* of behavior. I.,C. is one of the freest forms of interview since behavioral *reactions* are practically inexhaustible. In such interviews, the psychologist is interested not only in the obvious content of the patient's answer (facts, opinions, *sentiments*, vocabulary, *associations*, ideas) but also in his behaviour (the tone, stammering, gestures, etc.). A substantial requisite for a successful I.,C. is the establishment of a rapport between the participants, which requires from the psychologist great patience, adaptability

to the prevalent *interests* of the patient, and resourcefulness. In some cases I.,C. can have an immediate psycho-therapeutic effect when the patient not only comprehends the root-causes of his difficulties but also determines ways to overcome them. The general strategy and the course of I.,C. are based on the preliminary data of a diagnosis.

Interview, Diagnostic, the process of obtaining information on the characteristics of a personality, a process which is used at the early stages of *psychotherapy*. I.,D. serves as a means of establishing close personal contact with the interlocutor. In many situations of clinical work, I.,D. is an important means for penetrating the inner world of the patient and getting to know his problems. Since the interpretation of the interlocutor's behaviour can lead to inadequate conclusions and distortions, high demands are placed on the interviewer: he has to have an extensive reserve of behavioral reactions to the respondent's answers, that is, reactions expressing his interest, impassivity, disagreement, understanding, etc. The diagnostician must know the vocabulary of the patient; the choice of expressions and turns of speech should be measured against the age, sex and environmental background of the patient. There are two kinds of I.,D.: (1) controlled, from fully programmed (as a kind of questionnaire with an invariable strategy and invariable tactics) to completely free (a stable strategy with totally free tactics); (2) uncontrolled ("confessional", with the initiative belonging to the respondent). A standardised I.,D. allows a quantitative expression of results and does not take much time. Among its shortcomings are: the supression of the spontaneity of answers; the loss of emotional contact with the patient; the activation of protection mechanisms. This is why I.,D. is very rarely used in clinical work.

Introspection, *see Self-Observation.*

Introspective Psychology, a number of trends in psychology using as the sole method of studying psyche the *observation* by the subject of the content and acts of his own *consciousness*. I.P. originates from the teachings of René Descartes and John Locke, according to whom human consciousness is apprehended in a way essentially different from that of cognising the outside world, that is, by introspective contemplation or internal experience whose objects are *images, thoughts, emotional experiences*. In the period of the formation of psychology as an independent science this method became the guiding principle for the German psychologist Wilhelm Wundt and his school combining introspection (see *Self-observation*), which was understood as an internal *perception* by the subject of the mental processes realised by him, with the experimental method (see *Experiment*). It was surmised that the unreliability of usual (non-scientific) *self-observation* could be overcome by the training of subjects who were developing the *skill* of self-account of what they directly

perceived at the moment an *irritant* was presented. The data they reported were recognised as scientific facts only in those cases when the constant external stimuli led to the same subjective phenomena. On this basis *sensations*, their copies—the images of *memory* and the simplest *feelings* were accepted as the structural elements of *psyche*. These "atoms" of the sensory "fabric" of consciousness were studied from the viewpoint of their quality, intensity, etc. The American psychologist Edward Titchener was the most consistent and straight-forward advocate of this approach (see *Structural Psychology*). Another variant of I.P. was presented by the German psychologist Franz Brentano and his followers (Carl Stumpf, Theodor Lipps, Oswald Külpe) who saw the task of psychology in an objective reconstruction of what the *individual* felt in all its totality and specificity. That postulate influenced the programme of the *Würzburg School* which, without reducing introspection to the account of immediate stimuli, combined it with retrospection—the subsequent reproduction of what the subject experienced earlier in solving intellectual *tasks*. *Gestalt psychology* also criticised Wundt for the "atomism" of his scheme, and it used the testimonials of consciousness to prove the integrity of the mental image. In advancing the subjective method as the only means of exploring mental, as distinct from physical reality, I.P. identified this reality with self-observation data, which resulted in consciousness being found to be set apart from the rest of the world both in its essence and cognoscibility. The idealism and subjectivism of I.P. have led it to a crisis and deprived it of scientific significance. I.P. has been sharply criticised by the adherents of *behaviourism* and *psychoanalysis*, mostly from mechanistic positions. The methodological unfoundedness of I.P. has been exposed in the works of Soviet psychologists.

Intuition, the knowledge emerging without the realisation of the ways and conditions of its reception, owing to which the subject has it as a result of "immediate perception". I. is interpreted both as a specific ability (for example, artistic or scientific I.) and as an "integral grasping" of the conditions of a *problem situation* (sensory I., intellectual I.), as well as a mechanism of creative activity (creative I.) (see *Creative work*; *Imagination*). It is typical for intuitivist concepts (Henri Bergson, N.O. Lossky, Sigmund Freud) to interpret I. as the initial cause of the creative act concealed in the depths of *the unconscious*. Scientific psychology regards I. as a necessary moment of transgressing the limits of stereotyped behaviour and, in particular, the logical programmes for the solution of a problem, the moment being determined by the very nature of creativity. Any "spontaneous" intuitive knowledge is always reflected in the experience of human practical and spiritual activity, which, in fact, makes it possible to speak of professional I. as a necessary component of professional creativity, as the aggregate psychological component of professional activity.

Modern data accumulated by the psychology of sensory cognition, research into the genesis of perception, visual thinking, etc. convincingly prove the intermediary nature of the most elementary forms of the sensory reflection of reality, in which their sociohistoric nature finds its expression.

Invested Effort, a psychological phenomenon in which the *subject* cherishes more than other factors, say, time, some other aspects of his activity personally important to him and actualising his potentials, especially creative abilities. Due to his social nature, the subject feels the *need* for other people's appreciation of what he himself regards as his I.E. When other people ignore it, the subject's motivation declines; he becomes indifferent and begins to work without interest, without the motivational impulse needed to achieve high results (Anna Lipkina).

Irradiation, the ability of a nervous process to spread from the place of its origin to other nerve elements. According to Ivan Pavlov, the I. of *excitation* lies at the core of the *generalisation* of the *conditioned reflex* and depends on the intensity of the *stimulus*. It has been established that the effect of generalisation is the result of the operation of activating subcortical structures (see *Brain*). The so-called I. of inhibition has yet to be studied thoroughly. According to Pyotr Anokhin's concept (1968), this phenomenon comes down to an outside expression of the degree of dominancy (see *Dominant*) of the biologically negative *reaction* and its inhibiting impact on other reactions.

Irritability, change in the physiological state, organs, tissue or cells of an integral organism under the influence of external influences *-irritants*. The minimal magnitude of an irritant sufficient to cause such a change is called threshold. I. relates to the fundamental properties of living systems, and its presence serves as a classic criterion of life in general. The I. of Protozoa (one-celled) organisms is already characterised by a specific direction of their movement, namely towards or from the source of irritation. Along with the ability to form elementary conditioned *reactions*, the I. of Protozoa protoplasma underlies all their behavioural forms. I., or excitability of the *sense organs*, is a major requisite for *reflection* by an organism of the objective properties of the environment, this being the essence of *sensitivity* processes (see also *Sensation*).

Irritant, any material agent, external or internal, conscious or unconscious, which causes subsequent changes in the state of an organism. The notion "I." is generic in relation to the notions of *stimulus* and *signal*. In a fixated cause-and-effect relationship between a given event and subsequent changes in the state of the organism, I. is the stimulus, and the corresponding change the *reaction*. Psychologists distinguish I's of

biologically direct significance (biogenic); I's of biologically indirect significance (abiogenic); and I's of unclear (ambiguous) biological significance. Abiogenic I's (when the organism is sensible thereto) take the form of signals, since they orient the organism to biogenic and ambiguous I's. I's include material agents of varying nature (physical, chemical, physico-chemical), which are perceived either by specialised end organs of different *analysers*, or directly by cells of certain organs and tissues. I's change in intensity from minimal (sufficient to cause a *sensation*) to maximal (in which a given sensation is still retained), manifesting themselves as threshold sensations involving the lower and upper absolute thresholds (see *Sensation Threshold*). I's may also be adequate (genetically related to corresponding analysers) and inadequate (unrelated, but causing sensations specific for a given analyser). For instance, both light and mechanical and electrical effects on the retina cause visual sensations in the eye.

Id, see *Freudianism*.

J

James-Lange Theory of Emotions, proposed independently by the American psychologist William James and the Danish philosopher Carl Lange in the 1880s-1890s. According to the theory emotions are caused both by changes in the motor voluntory sphere and by involuntory changes in the visceral (vascular endocrine etc.) sphere. The sum total of *sensations* connected with these changes is called *emotional experience*. According to James, we are sad because we cry, we are afraid because we shiver, we are happy because we laugh. James linked emotions with a broad range of peripheral changes, while Lange only linked emotions with the vascular and motor systems: the innervation ratio and vascular diameter. Therefore, peripheral organic changes, which were previously viewed as the result of emotions, were argued to be their cause. This theory was an attempt to present emotions as an object accessible for practical study. However, by linking emotions exclusively with bodily changes, it came to regard the former as phenomena having nothing to do with *needs* and *motives*, depriving emotions of their adaptative meaning and neglecting their regulative functions. The voluntary regulation of emotions received a rather primitive interpretation: undesirable emotions (for instance, anger) can be suppressed if one shifts in action characteristic of desirable emotions. The basic objections advanced against this theory in psychology are concerned with the mechanistic interpretation of emotions as a totality of sensations caused by peripheral changes, and with the interpretation of higher *sentiments*. The critique of the James-Lange theory by physiologists, such as Charles Sherrington and Walter Cannon was based on data re-

ceived from experiments on animals which proved that the same organic changes accompany different emotions and that conditions have nothing to do with emotions. Lev Vygotsky criticised this theory for its opposition of "lower" elementary emotions to higher, exclusively human feelings (aesthetic, intellectual, moral, etc.), as possessing non-material grounds.

Joint Activities (in social psychology), an organised system of *activeness* involving interacting individuals and aimed at purposeful production (reproduction) of objects of material and spiritual culture. The distinctive features of J.A. are: (1) spatial and temporal co-presence of all participants, making it possible to establish direct personal contacts, including exchange of actions, information, and mutual *perception*; (2) presence of a common *goal*, i.e. an anticipated result of J.A., which would meet common *interests* and help fulfil the *needs* of each individual involved in J.A. Being a prototype of the result of J.A. and at the same time its starting moment, the common goal is a constituent feature of J.A.; (3) organisation and leadership, either embodied in one of the group participants entrusted with special powers, or distributed among group members; (4) division of J.A. among its participants, depending on the nature of the goal, means and conditions for achieving it, and composition and skills of the performers. This implies interdependence of group members, which is expressed either in the final product of J.A., or in the production process itself. In the first case, individual operations are performed in a parallel way and do not depend on the sequence of actions performed by other group members. In the second case, they are interconditioned (specialised and hierarchised), since they must be actualised simultaneously as functionally different components of a composite operation, or in a strictly defined order, when the outcome of one operation causes the start of the next one. An instance of highly specialised J.A. is collective research, which presupposes a ramified system of social *roles* for its participants (see *Collective, Scientific*); (5) forming of *interpersonal relations* in the course of J.A. These relations develop on the basis of objectively present interactions of functional roles and with time become relatively independent. Being originally conditioned by J.A., interpersonal relations in turn affect its process and results. Marxist *social psychology* regards J.A. as the main condition of socio-psychological integration (see *Group Integration*) of the individuals involved therein, as the prime foundation for the formation and development of relationships between individuals. Being an essential element for performing J.A., these relations cannot be fully understood outside the contextual, structural and functional characteristics of J.A. An integral system of interacting individuals is a way of actualising J.A., and the *group* itself acts as a combined subject of specific J.A. in the context of concrete social relations. In fact, it is the socially conditioned principles of

actualisation and reproduction of J.A. that lead to the emergence of a group as a socio-psychological unit. The socially active nature of *group formation* is revealed especially distinctly in studies of collective work, which is the original form of any J.A. All manifestations of joint work activities are essentially social. The object of joint work activities, which directs the activeness of group members, turns into a motive force for them as a result of the *interiorisation* of its social significance. This predetermines change in the psychological structure of individual activity, namely, the separation of its goal and *motive*, whose connection now takes on the form of J.A. and is comprehended by the participants through their relationships. Objectively, J.A. are multipurpose in character, this being due to intro- and intersystemic connections. The fact that individual acts of activity condition the existence and reproduction of both the individual himself and the processes of group activity as a whole, is indicative of mutual penetration and mutual enrichment of individual activity and J.A., of interaction of individually-motivated and socially-standardised J.A. conditions.

Judgement, a logical form of *thinking* (see also *Concept; Inference*). J. connects two notions: the subject and the predicate. Logic works out J. classifications, and psychology studies the development of J. as a form of abstract logical thinking, and also impaired logical thinking. Psychological literature interprets the psychological mechanisms underlying interconceptual relations.

Juridical Psychology, a branch of psychology that studies the regularities and mechanisms of human mental activity in legal relationships. Initial laboratory research in J.P. was performed in the late 19th and early 20th centuries under the influence of advances in *experimental psychology*. Principal efforts were aimed at studying the psychology of testimony and interrogation (Alfred Binet, Hans Gross, Karl Marbe, William Stern), of "diagnosing implication" in a crime (Carl Jung), of court and investigation proceedings, and the psychological foundations of vocational selection and training of lawyers (Hugo Munsterberg). In the USSR, intensive research in J.P. was started in the 1920s. Soviet psychologists performed numerous studies on criminal and convict psychology; underworld life; regularities in giving testimony and the causes of errors therein; and the theory and methods of forensic psychological expert examination (Mikhail Gernet, Mikhail Kochenov, Alexander Ratinov). Original experiments were also performed for detecting crime traces by psychological methods (Alexander Luria). The system of contemporary Soviet J.P. comprises *criminal psychology*, which studies the psychological mechanisms of criminal behaviour and the criminal's personality; *forensic psychology*, which encompasses a wide scope of problems associated with court proceedings (see also *Forensic Psychological Expert Examination*); correctional psychology, which

studies issues concerned with corrective training of criminals; and legal psychology, which studies legal consciousness, its educational principles, and factors causing corrupt legal consciousness. J.P. uses all basic psychological techniques (*experiment*, *observation*, *talk*, *questionnaires*, testing, etc.), and also develops methods typical of this field of knowledge, e.g. psychoanalysis of data concerned with a given criminal case.

K

Keenness of Observation, a characteristic feature of the *individual* expressed in the *ability* to notice substantial features of objects and phenomena, unobtrusive features inclusively. K. of O. is acquired with accumulation of life experience and implies curiosity and inquisitiveness. To develop K. of O. is an important task in forming adequate *perception* of reality.

L

Lability, a maximum number of impulses which a nerve cell or functional structure can pass on without distortion in a unit of time. The term was proposed by Nikolai Vvedensky. In *differential psychophysiology* L. is a key property of the *nervous system*, which characterises the speed of the appearance and cessation of nervous processes.

Laboratory Experiment, a type of *experiment* conducted in specially set rooms which ensures a particularly strict control of independent and dependent variables. Thanks to these conditions the results of L.E. are usually distinguished by a relatively high degree of reliability and authenticity (see *Validity*). Noted occasionally among L.E. shortcomings is a low degree of "ecological validity"—correspondence to real life situations.

Language, a system of signs serving as a means of human *communication* (1) and mental activities (see *Thinking*), a way for *personality* to manifest his or her self-consciousness and to pass information down from generation to generation and store it. Historically, L. developed on the basis of labour, men's *joint activities*. "Language is as old as consciousness, language *is* practical, real consciousness that exists for other men as well, and only therefore does it also exist for me; language, like consciousness, only arises from the need, the necessity, of intercourse with other men." (Karl Marx, Frederick Engels, *Collected Works*, Vol. 5, Progress Publishers, Moscow, 1976, p. 44.)

Leader, Informal, (in social psychology) (1) of a *group* recognising his or her right to make decisions in important situations; (2) individual capable of playing the central role in

organising *joint activities* and regulating relations in a group (see *Interpersonal Relations*). L. may be the formal or informal head of a group. Singled out (Boris Parygin) are the following distinctions between L. and manager: (1) manager is usually appointed officially, while a leader may emerge spontaneously; (2) manager is endowed with certain rights and responsibilities by law, while L. may not be; (3) manager is entrusted with a definite system of officially established sanctions (see *Control, Social*), using which he can influence his subordinates; L. does not possess them; (4) manager represents his group in external organisation and solves questions linked with its official external relations; L. may be restricted in his activity to basic intra-group relations; (5) manager as distinct from L. bears responsibility before the law for the state of affairs within the group. If formal leader of a group and its informal leader are two persons, relations between them may either facilitate joint action in harmonising the group's life or, on the contrary, rend them a conflicting character (see *Conflict*), which in the final analysis is determined by the *level of group development* (see *Leadership, Style of Leadership*).

Leader (Manager), a person officially entrusted the functions of management and organisation of the activities of a *collective*. L.(M.) bears legal responsibility for the functioning of a *group* (collective) before the authority or body that had appointed (elected) him, and possesses strictly defined rights for punishing or rewarding his subordinates in order to influence their production (research, creative, etc.) results. Unlike a *leader, informal*, L.(M.) has officially stipulated rights and duties. He also represents his group or collective in other organisations.

Leadership, relations of domination and subordination, influence and following in the system of *interpersonal relations* in a *group*. Relevant studies have distinguished different *styles of L.* and worked out a number of theories of L. The theory of leadership *roles* (Robert Bales) examines the role of a "professional"—a task-oriented leader and the "socio-emotional specialist", who solves human relations problems. The supporters of the theory of personality traits consider L. as caused by specific leadership traits and capabilities responsible for recognising a person as a leader. Studies conducted in accordance with this theory concentrated on revealing the specific qualities of leaders. A variant of such an approach is the charismatic concept of L., according to which L. has been bestowed on outstanding individuals as some heavenly gift (charisma). The supporters of the interactive theory presume that a leader may be any person who occupies a certain place in the system of *interpersonal interactions*. The question of who specifically takes on L. must be decided with consideration for the individual traits of the candidate for leader, and the personal characteristics of other members of the group and its structure, the ob-

taining situation and the tasks being carried out. The situational theory of L. (or the group-dynamic approach) asserts that L. is primarily the product of the situation obtaining in the group and that in a very favourable, or on the contrary, extremely unfavourable situations for the group, the *task*-oriented leader achieves better results than a person-oriented leader. In a relatively favourable situation the person-oriented leader will be more successful. The synthetic (or integrated) theory accentuates the interconnection of the main components of the process of organisation of interpersonal relations: leaders, followers (or those being led) and situations in which L. is being effected. The supporters of the above-mentioned L. theories unwarrantedly transfer the results of laboratory experiments to the sphere of real phenomena of social life. Soviet psychology is predicated on the sociohistorical causality of L. phenomena. As the studies of Soviet psychologists show, the *level of group development* is of substantial importance in understanding L. and its efficiency. In a *collective*, owing to the presence of *value-orientational unity* the allegedly unavoidable, from the Western psychologists' viewpoint, counterposing of a "task-oriented" leader and a "person-oriented" leader, is removed.

Learning, the process and result of acquiring individual experience. The notion "L." initially originated in *Animal psychology* in the works of the US psychologist, Edward Thorndike, and others. L. differs from study as the acquirement of experience in activity guided by cognitive motives and objectives (or motives alone). By L. human beings can gain any experience (knowledge, *capabilities* and *skills*), and animals—new forms of behaviour. Like any gain of experience, L. includes the unconscious processes of comprehension and fixation (involuntary *memorising*) of the material. In animals, L. is the principal form of gaining experience, and it occurs either gradually (in repeating behavioural acts) or at once (*imprinting*). Goal-directed L. in animals exists only in an embryonal form (inspection of a novel situation for the future, imitation) (see *Learning by Animals*). In human beings, the role and significance of L. change in the process of *ontogenesis*. In the preschool age, L. is the main way of acquiring experience; subsequently, it recedes to the background to be replaced by study, by educational activity, even though it does not lose its significance altogether. A major factor in L. is the place of the assimilated material in corresponding activity. A person would acquire a better knowledge of some things if it is the target of his or her activity. According to some theories, there is a single mechanism of L. (by human beings and animals, in L. and study); according to others, this mechanism differs. In Western Europe and the United States; the former group includes theories of *behaviourism* (Edward Thorndike, J. Watson, and others), which interpret L. as a process separate from mental phenomena and cognition. It is a process of chance, blind association

of *stimuli* and *actions* based on readiness, *exercise*, *reinforcement*, or contingency in time.
Such theories contradict subsequently established facts showing that L. is possible without reinforcement or exercise. Theories which regard L. as a process in which mental reflection of the conditions of activity and behaviour analogous to passive establishment of new connections (*Associanism*), reconstruction of initially integral experience in the form of patterns (*Gestalt psychology*) or plans (*Neobehaviourism*) should also be assigned to this group. Again, the latter to a large measure comprises Jean Piaget's theory (see *Geneva School of Genetic Psychology*), and also the theories of some representatives of the informational approach and cognitive psychology. Soviet psychologists and several authors in the United States and Western Europe proceed from the view that L. mechanisms in human beings and animals differ. They say that in humans, L. like study, is a cognitive process of internalising various practical and theoretical activities, in animals it involves intensive changes in their innate specific experience and its adaptation to concrete conditions.

Learning Ability, individual speed and quality of assimilation of knowledge, and skills in the course of learning. General L.A. as an ability to master any material is distinguished from special L.A. as an ability to master specific types of material (various sciences, arts, and practical activities). The former is an indicator of general, and the latter of special *giftedness*. L.A. depends on the level of development of cognitive processes (*perception*, *imagination*, *memory*, *thinking*, *attention*, *speech*) and on the individual's motivational-and-volitional and emotional spheres, and also on the development of their derivative components (understanding of the contents of material to be learned from direct and indirect explanations, and mastering of the material to a degree when one can apply it actively). L.A. is determined not only by the level of development of active cognition, i.e. by what the *subject* can learn and master independently, but also by the level of "receptive" knowledge, i.e. by what the subject can learn and master with the help of another person who already has corresponding knowledge and skills. Hence, L.A. as an ability to learn and master given material is distinguished from the ability to cognise independently and cannot be fully assessed by its development indicators alone. The maximum level of L.A. is determined by the individual's abihity to learn by himself.

Learning by Animals, the acquisition and accumulation in *ontogenesis* of the individual experience of an animal and improvement and modification of the innate (instinctive) foundation of its mental activity in line with the concrete habitat of the species. In the process of learning, animals develop the individually variable, temporal components of *behaviour* which impart it the adaptive lability (mobility) and variability needed for survival. This results in

the forming of a single behavioural act involving both innate (typical of the given species) and acquired (individually variable) components. Sensory-motor training and *habituation* to long-acting or systematically repeated external irritants are the most primitive forms of L. by A. In its basic form, i.e. a *skill*, L. by A. is characterised by the development through *exercise* of more or less automatised motor techniques ensuring the solution of a definite biological task. The content of skills is determined by the nature of obstacles overcome during the course of their development, while the degree of their perfection is determined by the differentiation and generalisation of the perception of conditions in which the skills develop. In training animals, skills are developed under man's purposeful influence in line with his scheme. In animals, the required movements are reinforced (normally by giving them food) and contingent with man-made signals while undesirable movements are blocked (by punishment). When maintaining contact, L. by A. sometimes occurs in the form of imitation (see *Imitation by Animals*). Most often, such L. by A. (imitational learning) remains within the framework of species-and-type manipulation [see *Manipulation (by Animals)*] and plays a certain role in forming the behaviour of young animals (assimilation of experience of adult species). A special form of L. by A. is *imprinting*.

Learning, Social, a term introduced by behaviourists and signifying the acquisition by an organism of new forms of reactions by way of imitating the behaviour of other living creatures or observing them. L.,S. was explained in principal terms of *behaviourism* (*stimulus, reaction, reinforcement*) and experimentally studied on animals. For instance, a white rat followed another in a labyrinth only if the latter's reactions were reinforced by food. Subsequently, this approach was supplemented by the introduction of cognitive factors. Man was recognised to have the ability to represent external influences and actions thereto symbolically, in the form of an "inner model of the outside world" (A. Bandura). Due to this, even in cases when the individual does not respond openly and does not receive reinforcements, he, by watching reinforced actions of others, learns to imitate them. In these conditions, the acquisition of new reactions is a less protracted process than in developing usual *skills*. In experiments on L.,S., children were shown films with patterns of behaviour that had different consequences (either positive or negative). Depending on the nature of the observed consequences (reward or punishment), the testees imitated the pattern in varying degrees. Although in this version, the conception of L.,S. does allow for a choice by the subject of a response action, it is on the whole mechanistic and repeats the general faults of behaviourism.

Leipzig School, a group of psychologists headed by Felix Krueger, who, working in Leipzig University in the 1920s-1930s, adopted as a basic notion

of psychology "integrity" viewed as the "totality" of an individual, which is studied primarily by the phenomenological method. L.S. came out against *Gestalt psychology* on the basis that many mental and socio-cultured phenomena cannot be derived from *Gestalt* laws as a perceptual structure (see *Perception*), but represent a special integral *experience* inherent in the innermost depths of *personality*. L.S. tended towards irrationalism in its interpretation. Proceeding from the idea of developing this integrity, L.S. used it in an experimental analysis of illusions, of visual and audio perceptions (see *Illusions of Perception*). It was established, specifically, that the distinction threshold for changing integral objects is lower than that of separate *irritants*. L.S. is sometimes called the "second L.S.", for prior to it the school of Wilhelm Wundt was set up in Leipzig University in the last third of the 19th century, which owing to the use of experimental methods exerted an enormous influence on the formation of psychology as an independent branch of science.

Level of Aspirations characterises (1) the level of difficulty, whose attainment is the common goal of a number of future *actions* (ideal goal); (2) the choice by an individual of the goal of his next action, the said goal being conceived as a result of emotional experience of success or failure in several previous actions (L. of A. at given moment); and (3) the desirable level of self-appraisal (*Self* level). The individual's desire to heighten his self-appraisal when he is free to choose the degree of difficulty of his next action would lead to a controversy between the tendency to increase one's aspirations to achieve maximal success and the tendency to reduce them in order to avoid failure. The emotional experience of success (or failure) from having (or not having) achieved a L. of A. would entail its shift to more difficult (or easier) tasks. If, after success, the individual chooses a less difficult goal and, after failure, a correspondingly more difficult one (which would be an atypical change in L. of A.), that is indicative of an unrealistic L. of A. or of inadequate self-appraisal. People with a realistic L. of A. are self-confident, persistent, highly productive, and self-critical as regards their own accomplishments. Inadequate self-appraisal may lead to highly unrealistic (exaggerated or belittled) aspirations. In behaviour, this is seen in choosing too difficult or too easy goals, in increased *worry*, lack of self-confidence, avoidance of competition, uncritical view of one's own accomplishments, mistaken forecast, and so on.

Level of Group Development, the extent of development of *interpersonal relations* which results in *group-formation*. Unlike Western psychology, which regards the time of group existence, presence of domination-submission relationships, number of group interactions, and number of reciprocal sociometric choices (see *Sociometry*) to be the indices of group-formation, Soviet social psychology accounts for a combination of two factors in revealing

L. of G.D., namely, the degree to which interpersonal relations are conditioned by the content (*goals, values*, organisation) of joint activities and the social nature of these goals and values (either corresponding to or preventing a given socio-historical process). Hence, collectives and groups that resemble them in terms of structure and social psychology may be assigned to higher L. of G.D., and groups based on asocial factors (various asocial *associations*) and diffuse groups (see *Group, Diffuse*) without common goals and values to lower L. of G.D.

Level of Movement Construction, Concept of, see *Physiology of Activeness.*

Libido, a central notion of *Freudianism* which signifies the "in-depth", unconscious psychological energy of an individual which is rooted in the sexual *instinct*. L. is seen as a dominant *motive* of human *behaviour*, which is manifested in a socially acceptable form due to *sublimation, repression* and other forms of "psychological defence" (see *Defence, Psychological*). In Carl Jung's psychoanalytical concept, L. is a person's irrational *drives* lacking sexual basis which determines his behaviour.

Lie Detector, polygraphs used for an objective analysis of physiological parameters characterising a person's highly emotional states. L.D's were developed in the USA and are used chiefly in legal practice in interrogating lawbreakers. Transducers attached to the subject record the *galvanic skin response* (changes in the skin's electric resistance), the encephalogramme (a graphic record of the electrical activity of the brain), muscular tremor, etc. During the interrogation the data gained from all the devices is recorded on a single tape, enabling an expert to evaluate the emotional state of the interrogated person more precisely than if he had simply observed the latter's external behaviour, since it is practically impossible for an untrained person to voluntarily control his vegetative *reactions*. The findings thus obtained cannot be regarded as a reaction to the conjectual emotiogenic situation, since they may be a reaction to the procedure causing *fear, anxiety, depression*, etc. It is impossible to distinguish between "genuine" emotions and those resulting from the use of these devices. This was the cause of numerous legal errors which evoked a negative attitude towards lie detector tests. A method of recording the "affective signs" of a crime (see *Contiguous Motor Technique*) was elaborated in psychology prior to the appearance of L.D's.

Lie Telling, an individual psychological trait which takes the form of conscious distortion of the real state of affairs, a striving to create an incorrect impression of facts and events. L.T. contradicts universal human requirements stemming from people's need to have a correct idea of the society in which they live, of the deeds of those around them which they must assess, of the circumstances in which they

find themselves. Distinguished from L.T. should be distorted knowledge resulting from undeveloped thought, inability to differentiate between one's wish and actual facts (in children—"imaginary L.T."). Mendacity—pathological lying which is usually connected with uncritical belief in the reality of the imaginary—is a special case. As a social phenomenon L.T. is usually observed in an atmosphere of hostility, competition and suspicion between people. Differentiation of L.T. and an evaluation of its concrete manifestations is possible given a correct understanding of the *motives* and causes of this phenomena. As a type of relations and a psychological feature, L.T. is overcome in the course of education based on trust between the tutored and the tutors.

Linguistic Relativity, Hypothesis of, Edward Sapir's and Benjamin Whorf's hypothesis on the determination of *perception* and *thinking* by structures of a *language*. According to L.R.,H., linguistic skills and norms unconsciously (see *The Unconscious*) determine the images ("pictures") of the world carried by the bearers of this or that language. The differences between the images increase with the language's distance from each other, for the grammatical structure of a language imposes a method of categorisation and description of the surrounding world. The formative role of language in cognitive processes is also recognised in Marxist psychology, which studies the mediating influence of language *meanings* on the processes of *categorisation* in thought, perception, *memory*, *attention*, etc., but in L.R.,H. this role is absolutised, resulting in an incorrect notion of cognition "fenced off", through language structures, from the real world, in the alienation of meanings from social practice and an erroneous thesis on the identity of language and thought. However, not only language meanings but also meanings in the form of perceptual *symbols*, patterns take part in cognitive processes; meanings may also be expressed in the form of symbolic actions. The absence in a language of words for expressing a number of notions does not signify the impossibility of their existence in *consciousness*. Along with everyday speech there also exist scientific languages which use formulas, diagrams, plans, thereby removing the specifics of categorisation which result from the national peculiarities of a language. Serving as an impulse in the study of the interconnection between language and cognition, L.R.,H. posed a number of important linguistic and psychological problems, without, however, giving a methodologically acceptable solution to them.

Localisation of Higher Mental Functions, assigning of *higher mental functions* to specific brain structures (see *Brain*). The problem of L. of H.M.F. is being worked out by *neuropsychology*, neuroanatomy, neurophysiology and others. The history of the study of L. of H.M.F. goes back to antiquity (Hippocrates, Galen, et al.). The representatives of narrow localisationism examined mental functions as a single

whole that is indivisible into components of "mental abilities", carried out by limited areas of the cortex—particular brain "centres". It was considered that impairment of the "centre" results in the failure of a corresponding function. A logical result of the ideas of naive localisationism were Franz Gall's phrenological map and Karl Kleist's localisation map. These two maps presented the work of the cortex of the hemispheres as the sum total of the functions of different "centres" of mental abilities. Another trend, anti-localisationism, examined the brain as a single indifferentiated whole, with which all mental functions are equally linked. From this it followed that impairment of any region of the brain results in a general disturbance of a function (for instance, in the lowering of *intellect*), whereas the degree of a function disturbance does not depend on localisation and is determined by the mass of the affected brain. According to the theory of the systems, dynamic L. of H.M.F., the brain, a substrate of mental functions, works as a single whole, consisting of a host of highly differentiated parts, each fulfilling its own specific role. It is not the entire mental function, and not even its separate links, but those physiological processes-(factors) which are accomplished in corresponding structures that should be correlated directly with brain structures. Disturbance of these processes leads to the appearance of initial defects involving a whole series of interconnected mental functions.

Locus of Control, a quality characterising a person's predisposition to attribute the responsibility for the results of his activity to outside forces (external L. of C.) or to his own capabilities and efforts (internal L. of C.). The notion of L. of C. was proposed by the US psychologist Julian Rotter. L. of C. is the stable property of an individual, formed in the process of his *socialisation*. A special questionnaire has been elaborated and a complex method developed for the determination of L. of C., which makes it possible to reveal a link between L. of C. and other personality characteristics. It has been demonstrated that people possessing an internal L. of C. have more self-confidence, are consistent and more persistently pursue their goal, are more inclined towards self-analysis, are balanced, amiable, good-natured and independent. A disposition for an external L. of C., on the contrary, is manifested along with such features as uncertainty of one's capabilities, quick temper, a tendency to postpone indefinitely the realisation of decisions, anxiety, suspiciousness, conformity and aggressiveness. It has been proved experimentally that internal L. of C. is a socially accepted value (an internal L. of C. is always ascribed to the ideal Self).

Longitudinal Study, a prolonged and systematic investigation of the same subject, which makes it possible to determine the age range and individual fluctuation in the phases of a person's life cycle. Initially L.S. (as a method of longitudinal cuts) took shape in child

and *developmental psychology* as an alternative to the prevailing methods of determining the subject's condition or development level (by the method of cross cuts). The proper value of L.S. was associated with the possibility of forecasting the further course of mental development and the establishment of genetic ties between its phases. The organisation of L.S. implies simultaneous use of other methods, such as observation, *testing*, psychography, and praximetry. Recently in child and age psychology in connection with the active development of experimental study and educational programmes it has been disclosed that the traditional type of L.S. is but of a limited significance, and it has been established that it may be efficient if it is carried out as an investigation of different variants of development.

Love, (1) a high degree of a positive emotional attitude, which singles out its object among others and places it at the centre of the subject's vital *needs* and *interests* (L. of fatherland, mother, children, etc.); (2) a subject's intense and relatively stable *sentiment*, physiologically conditioned by sexual needs and expressed in a socially formed endeavour to be, by one's personal-significant features, most fully represented in the life of another person (see *Personalisation*) in a way that would arouse in him the need for a reciprocal sentiment of the same intensity and stability. The sentiment of L. is profoundly intimate and accompanied by situationally conditioned and changing *emotions* of tenderness, ecstasy, jealousy, and others, which are experienced depending on a person's individual traits. As a generic notion, L. embraces a wide range of emotional phenomena, distinguished by their depth, strength, object orientation, etc.—from a weakly expressed favourable attitude (see *Sympathy*) up to overpowering feelings, reaching the magnitude of *passion*. The fusion of an individual's sexual need, which in the final count ensures the continuation of the race, and L., as a supreme sentiment providing optimal opportunities for an individual to be continued, ideally represented in a *significant other*, does not permit practically separating one from the other in *reflexion*. This circumstance explains the fact that different philosophical and psychological orientations unwarrantedly absolutised either the biological basis of L., reducing it to the sexual instinct (L. as sex), or denied and minimised the physiological side of L., interpreting it as a purely spiritual sentiment (Platonic L.). Though physiological needs are a requisite for the appearance and support of the feeling of L., however, in connection with the fact that the biological aspect of personality appears in a transformed social aspect, L. in its intimate psychological characteristics is a socially and historically conditioned sentiment, uniquely reflecting class relations and cultural features, and serving as a moral basis of the institution of marriage. Investigation of the *ontogenesis* and functions of L. shows that it plays a big role in the genesis of personal-

ity and in the formation of the *Self concept*. It has been established that *frustration* of the need for L. results in a worsening of the somatic and psychological condition. There is a close tie between the individual sentiment of L., the traditions and norms of society and the specifics of family education—both these groups of variables are the source of the subject's interpretation of his state. Numerous attempts have been made in psychology to investigate L.'s internal structure as a whole and the correlation of its individual components with the different characteristics of an individual. The most important of the obtained results is the establishment of a correlation between the ability for L. and the subject's attitude towards himself. This and a number of similar facts, along with the role of L. in setting up a family, make the problem of L. exceptionally important for *psychotherapy* and psychological consultation, for the *education* and *self-education* of an individual.

M

Man, a creature representing the highest level of life's development, a subject of socio-historical activity. As a subject and product of labour in society, M. is a system wherein the physical and the mental, the genetically conditioned and the acquired during life, the natural and the social form an inseparable unity. As Marx wrote, "the essence of man is no abstraction inherent in each single individual. In its reality it is the ensemble of the social relations." (Karl Marx, Frederick Engels, *Collected Works*, Vol. 5, Progress Publishers, Moscow, 1976, p. 4). M. is studied by several sciences, e.g. anthropology, sociology, ethnography, pedagogy, anatomy, physiology, etc. Marxist-Leninist philosophy gives the most generalised and, at the same time, the most concrete historical characteristic of M. Psychological science studies his psyche and its development (see *Sociogenesis*), his individual psychological features (see *Individuality*; *Personality*), the *roles* he performs in social life, his *activities* and *communication* (1). Virtually all psychology is concerned with M. as an *individual* involved in social relationships, with his development in the course of instruction and *education*, and with his moulding in activity and communication, primarily in labour.

Management, see *Leadership*; *Leader (Manager)*.

Manipulation (by Animals), a manifestation of motor activity embracing all forms of active shifting of elements of the environment in space by animals (as counterposed to locomotion—movement in space by animals themselves). With the higher animals M. is achieved primarily with the aid of the mouth and the front limbs (investigation of items, eating, defence, constructive activity and others). M. and a manipulatory solution of a *task* gives

an animal the most profound, diverse and significant data on object components of the environment and the processes taking place in it. In the course of evolution the progressive development of M. played a major role in the development of the cognitive abilities in animals and became the basis for forming their *intellect*. In fossilised primates—the ancestors of man—M., especially of "biologically neutral" objects, was the basis for the emergence of labour activity.

Marginal States, slight, obliterated forms of mental disorders close to the conventional boundary between mental health and pronounced pathology. The scope of these disorders is very wide. There are M.S. in the narrow and broad sense. M.S. in the narrrow sense include *psychogenies* without acute psychotic disorders (reactive states, *neuroses*), *psychopathy*, and mental disorders in extreme conditions. M.S. in the broad sense include slow, sluggish forms of schizophrenia, mild forms of circular psychosis (cyclothymia), psychosomatic disorders, chronic alcoholism (without pronounced degradation), etc. when patients show no profound psychic changes. Generally, M.S. are characterised by presence of specific psychosocial factors which play a dominant role in their forming and temporarily disrupt the individual's adaptability and integrated state. People in M.S. require specialised psychotherapeutic and sociopsychological aid both by medical institutions and consulting centres, "confidence phones", etc. oriented to healthy people.

Mass Communication, systematic dissemination (with the aid of technical means of circulation) of specially prepared socially significant messages among large, anonymous, dispersed audiences with the aim of influencing the *attitudes*, evaluations, opinions and *behaviour* of people. M.C. is an important social and political institution of modern society, acting as the subsystem of a more complex system—*communication* (2) and fulfilling on a wide scale the function of ideological and political influence, support of a social community, its organisation, information, education and entertainment, whose concrete content depends primarily on the distinctive features of a social system. Peculiar to M.C. is the institutionalised character of sources and feedback lag. Complexes of technical equipment which ensure rapid transmission and mass circulation of verbal, pictorial and musical information (the press, radio, television, cinema, audio- and video-recordings), are summated by the term mass communication means. On the sociopsychological plane, M.C. possesses a number of important additional opportunities as compared with more traditional types of communication (interpersonal and public). Practice has shown that the M.C. effect depends largely on whether the psychological characteristics of the audience are taken into consideration: *attention*, *perception*, *comprehension*, and *memorising* of the messages. The dependence of the psychological processing of communication on the specifics of M.C. in general and of each concrete means

on the organisation of the flow of information, on the specific *interests* of various *groups* within the audience; corresponding interference and *barriers*; ways of overcoming them, etc. are being studied by psychology, sociology and the semiotics of M.C.

Mass Panic, a form of *crowd* (mob) behaviour, psychologically characterised by a state of mass fear of real or imaginary danger, a fear that grows in the course of mutual *contagion* and inhibit the ability to rationally assess the existing situation, mobilise one's volitional resources (see *Will*) and organise concerted counteraction. An interacting group of people degenerates more readily into a panic-stricken mob with less clear or less subjectively meaningful common goals and with lower group cohesion and lower authority of group leaders. One would distinguish the socio-situational conditions conducive to M.P., those due to a general *mental tension* causing a state of anxiety and anticipation of calamitors events (earthquake, war, military coup d'etat, etc.); common psychological factors (surprise; fear caused by scarcity of evidence about the exact source of danger; time of danger; and ways for countering that danger); and physiological factors (fatigue, hunger, intoxication, etc.). A detailed study of the factors and mechanisms instrumental to M.P. makes it possible to develop specific measures for preventing and halting M.P. which had already started. At the same time, relevant knowledge is widely used by special services in capitalist countries to evoke M.P. among political opponents (to fight against "illegal" meetings, manifestations, etc.), and also in warfare.

Mass Phenomena, coinciding assessments and *attitudes*, adopted *stereotypes* and suggested patterns of behaviour, linked with a more or less simultaneous *psychic state* of people, as a result of *communication* (2) in large groups (see *Group, Large*). The multiform types of behaviour of a *crowd*, mass hysteria and *mass panic*, *rumours*, fashions, and also socio-psychological traits of peoples (see *Mood, Public*), *public opinion*, etc., are considered M.P. The systematic study of M.P. was begun in the framework of two independent trends in the 19th-century psychology: the psychology of peoples (Moritz Lazarus, Heymann Steinthal, Wilhelm Wundt) and the psychology of the masses (Gustave Le Bon, Gabriel Tarde, Vilfredo Pareto). At the present time M.P. is the subject of investigation of the psychology of large groups, *psychology of propaganda*, and commercial psychology.

Materialism and Idealism in Psychology, the two basic philosophical orientations, whose struggle has influenced the development of psychological thought throughout its entire history. Materialism proceeds from the principle of the primacy of material existence, and the secondary nature of the spiritual, psychic, which is seen as a derivative of the outside world, independent of the *subject* and his *con-*

sciousness. Since in the development of scientific knowledge about *psyche* a major role is played by the discovery of regularities determined by non-psychological factors, such as the environment and bodily substratum, it is precisely materialism that is a motive force of progress in *psychology*. In ancient times materialistic ideas were manifested in different teachings on the *soul* as a part of the elemental force of nature: fire (Heraclitus), air (Anaximenes), atoms (Democritus), and others. Along with the views of philosophers who explained psychological processes materialistically, of great importance were the views of doctors on the dependence of a man's nature on the mixture of diverse components in the organism (teaching on *temperament*). Such a naive materialist orientation was unable to help explain a subject's capacity to grasp non-sensory (abstract) truths, to subordinate deeds to ethic ideals, to make one's own consciousness the object of analysis. These real properties of man's psyche were interpreted by idealism (Plato, Plotinus, Augustine) as the by-products of a special immaterial entity—the soul, which rules over everything earthly, material. h an approach linked idealist philosophy very closely with religion. In the New Age the remarkable successes of the materialistically-oriented natural science stimulated the flowering of psychological thought, which elaborated its most important theories in the 17th century: on *reflex*, on *perception* as a product of the influence of external objects on the *brain*, on *associations* and their organic mechanism, on *affects* (passions). All these processes were interpreted by Descartes, Hobbes and Spinoza from the materialist point of view. Such an understanding was developed in the 18th century by French (La Mettrie, Helvétius, Diderot, Pierre Cabanis) and English (David Hartley, Joseph Priestley) materialists, in opposition to the views which were advanced by teachings on the primacy of sensations in relation to external objects (George Berkeley, David Hume), on ideas as the primordial acts of the soul (Johann Herbart), and others. In the mid-19th century, a fundamentally new form of materialism, uniting it with dialectics, was developed by Marx and Engels, who elaborated the methodological principles on the basis of which Soviet psychology subsequently emerged. Dialectical materialism rejected diverse theories which ignored the activity of consciousness, man's ability not only to reflect the world, but also to change it in the process of socio-historical practice. The dialectico-materialist explanation of psychic processes is counterposed to both the idealist and vulgar-materialist, the latter being a variety of *reductionism*, reducing psychic processes to neural phenomena. At the same time there exists a close tie between the dialectico-materialist approach to psyche and the spontaneous materialism of natural scientists. Thanks to their mid-19th century discoveries, the first important regularities of psyche were experimentally established (*Weber-Fechner Law*, the laws of the

visual perception (Hermann Helmholtz), types of reaction time (Franciscus Donders), and others], which, along with the discoveries in biology (Charles Darwin) and physiology (Claude Bernard, Ivan Sechenov), led to the drawing up of psychology's categorial apparatus, which resulted in its becoming an independent science. Since the above-mentioned process took place under the influence of idealist philosophy dominant in the capitalist countries of the West, it got inadequately transformed into conceptions stemming from an introspectionist approach to consciousness (Wilhelm Wundt, Franz Brentano). In Russia, this process followed a different direction in the consistently materialist teaching of Sechenov, who synthesized the achievements of natural studies of psyche in world science. At the turn of the 20th century a crisis developed in psychology, with idealist philosophy having a negative effect (Machism, pragmatism). Subsequently, the chief achievements of psychology were determined by its link with physiology, cybernetics and other sciences, where spontaneous-materialist tendencies are dominant. Soviet psychology consistently realises the philosophico-methodological principles of dialectical materialism.

Meaning, a general form of the *reflection* by a subject of the socio-historical experience acquired in the process of *joint activities* and *communication* (1) and existing as concepts incorporated in the patterns of *action*, social *roles*, norms and values. An image of the world, of other people and of the subject himself appears before the subject's *consciousness* through a system of M's. The individual system of M's, as interiorised (see *Interiorisation*) standards, conditions the cognitive processes (*perception*, *thinking*, *memory*, etc.) and the acts of social *behaviour*. Control over the processes of the subject's individual *activity* is carried out through the system of M's. The bearers of M., along with the structures of the natural language, include such sign systems as diagrams, maps, formulas and blue prints, systems of symbolic *images*, the "language" of the arts (painting and architecture, dancing and pantomime, etc.). M. reveals itself as the content of *signs*, images, and actions in a socio-normative sense that is stable for the individuals living in a particular cultural environment. The representation of knowledge in a socio-normative form leads to its comprehension. By expressing an individual experience (perception, thinking, *emotional experience*, etc.) in M. with the aim of communication, the subject thereby comprehends it. M., combined with the *personalised meaning* and the sensory fabric, forms the structure of individual consciousness (Alexei N. Leontyev). The individual system of M. develops in the course of ontogenesis. Genetically earlier forms of M's have been singled out, which precede its most developed form—the *concept* (Lev Vygotsky). In them, generalisation is at first carried out on the basis of the resemblance of the emotional tone of the objects (see *Emotions*).

These earlier forms also include "everyday concepts" which are generalisation of individual experience and do not enter into the systems relations with other concepts. Generalisations, as a form of M. used by a child, may not coincide with generally accepted concepts. However, it is imperative for social interaction, communication and reciprocal understanding that the individual M's being formed should coincide, as regards the object, with the socially acceptable forms. On a functional plane, the M. of a word represents the unity of generalisation and communication, of the intellectual and the communicative functions of the subject. M. is a complex, hierarchically structured entity composed of more splintered compounds, sometimes called semas, semantic signs, the "atoms of M", etc. Their identification and the ascertainment of the relations between them, i.e. the semantic analysis of M. is the task of *psychosemantics*.

Measurement (in psychology), the revealing of the quantitative characteristics of psychic phenomena under study. The concept of M. was introduced at the turn of the 20th century as a result of the striving of all experimental sciences to apply mathematical methods. In a broader sense, M. is a particular procedure under which numbers (at least ordinal numbers) are assigned to objects according to established rules. The rules themselves are set with a view to establishing a correlation between certain properties of the numbers and those of the objects. It is the possibility of achieving this correlation that substantiates the importance of M. in psychology. In conducting M., the researcher proceeds from the assumption that everything which exists reveals itself in one way or another, or affects something. The multiplicity of psychic phenomena and factors of development in psychology is commonly called variables since they vary in quantity depending on individuals and time. The general goal of M. is to determine the magnitude of one indicator as compared with other indicators by measuring its "weight". From the standpoint of the M. theory, it is imperative to discern these aspects: (a) the quantity and range of the variables (the number of correct answers, the range of interests, etc.); (b) the frequency of the manifestation: correspondingly, the more often it manifests itself, the greater is the importance of a particular property; (c) the magnitude and strength of the manifestation. There are two basic trends in M.—psychophysical and psychometric. The first is characterised by attempts to bring into correlation, in experimental conditions, real physical *stimuli* (objects of different weights, intensity of light, sound, etc.) and the sensations evoked in a person by these stimuli (see *Psychophysics*). The psychometric direction is basically connected with the creation and application of psychological tests (see *Testing*) representing a model situation helping to receive patterns of behaviour and emotions. Like any measuring instrument, the

tests must be precise and reliable, valid and adequate. All these properties are appraised using particular mathematical procedures (see also *Scale: Scaling*).

Medical Psychology, a branch of psychology which employs psychological regularities in diagnostics, treatment and disease prevention. M.P. studies the activity of doctors, medical personnel, their attitude to a patient, the psychology of patients and their attitude towards each other, the role of psychological factors in the origin of psychosomatic disorders, *iatrogenic illness*. M.P. area of research includes correctional work, specifically *psychotherapy*, *psychohygiene*, use of the possibilities of *psychopharmacology*, psychological assessment in the course of the social and labour rehabilitation of patients. M.P. is divided into two main spheres: (1) use of psychology in a mental hospital, where the chief task is to study the influence on a patient's mind of changes in the structure and functioning of the *brain*, conditioned by either acquired or inherited pathology, specifically genetic anomalies; (2) use of psychology in a clinic for somatic diseases, where the main problem is the influence of *psychic states* (factors) on somatic processes. In Soviet psychological science, *neuropsychology*, pathopsychology, and *special psychology* have been noticeably developed in the framework of M.P. The elaboration by these M.P. branches of problems of the brain organisation of higher mental functions, the correlation of development and disintegration of psychic activity, etc. laid the foundation for M.P.'s active participation in solving diagnostical, experimental and rehabilitational problems. The second sphere of M.P. is less developed, which is determined primarily by the insufficient scientific elaboration of questions linked with the nature and mechanisms of interaction of somatic (bodily) and psychic processes. Among the most important is also the problem of studying doctor-patient relations. At present psychologists, physiologists, doctors, biologists and others pool their efforts to work out problems in this sphere of M.P.

Meditation, intensive, deep-going reflection, preoccupation with an object, idea, etc., which is achieved by concentrating on one object and elimination of all factors that distract *attention*, both external (sound, light) and internal (physical, emotional and other tension). M. is a method of psychic training, which acquires diverse forms depending on the cultural-historical environment. The greatest number of indications of M. methods have been preserved in the East—in India, China and the cultures associated with them. The Eastern types of M. (represented by all forms of *yoga* in India, Taoism in China) presuppose the religious-mystic dissolution of individual consciousness in an impersonal, oceanlike absolute—a situation that is realised by the image of a butterfly burning in a candle flame, or a doll of salt dissolving in sea water. Another religious-mystical direction of M., which

was cultivated by Christianity, interpreted it as a merging of two personalities (human and divine). In the 20th century techniques of M. were elaborated in some schools of *psychoanalysis*, specifically in *analytical psychology*, and also as a system of psycho-physical training, aiming at a therapeutic effect and not linked with any religious-mystical ideas (Johann Schultz' autogenic training, a system of "biofeedback", and others).

Melancholic Person, a subject possessing one of four basic types of *temperament*, characterised by a low level of psychic activity, slow movements, restrained motor action and speech, and easy fatigue. A M. is distinguished by high emotional *sensitiveness*, depth and stability of *emotions* with their slight external expression, with negative emotions prevailing. In unfavourable conditions a M. may develop an increased emotional sensitivity, reserve, alienation. Ivan Pavlov considered that with representatives of a melancholic temperament the inhibitive process prevails, accompanied by low excitability and inhibition.

Memorising, a general term used to denote the process of keeping material in *memory*. M. is a vital condition for the subsequent recollection of newly-acquired knowledge. The success of M. is determined first of all by the ability to incorporate new material into the system of meaningful relations. Depending on where M. processes are taking place, distinction is made between voluntary and involuntary M. In the case of involuntary M., a person does not set out with intent to remember some particular material. Here, processes connected with memory carry out *operations* servicing other *actions*. As a result, M. is of a relatively spontaneous nature and is fulfilled without special voluntary efforts, a preliminary selection of material or the conscious application of any mnemonic methods (see *Mnemonics*). It should also be mentioned, that in this case M. still depends on the *goals* and *motives* of activity. As was shown by the studies of Soviet psychologists (Pyotr Zinchenko, Anatoli Smirnov), involuntary M. is much more successful when memorised material forms part of the goal of the undertaken action. The specifics of the problem being solved also play an important role. An orientation towards semantic relationships leads to a more profound processing of the material and a prolonged involuntary M. Voluntary M. is a specific action whose purpose is to record material exactly for a maximal period with the aim of subsequent *reproduction* or simple *recognition*. It indicates a choice of methods and means of M., thereby influencing its results. A complex mediated structure is typical for this kind of M. The drawing up of a preliminary plan, the identification of semantic reference points, the semantic and spatial grouping of the material, the presentation of the material as a vivid *image*, and the correlation of the material with accumulated knowledge are among the commonly used methods of voluntary M. Other things being

equal, voluntary M. is more productive than involuntary M. and ensures a more systematic character, a conscious assimilation of new knowledge and control over this process (see *Learning Ability*). *Repetition* plays an important role among the M. mechanisms. By extending the effective duration of the impact made by information, it serves as a means for the development of the highest socialised forms of memory, above all, voluntary M. At the same time, research indicates that repetition is not an absolute necessity for long-term M. In fact, its role considerably declines when an attempt is made to memorise vitally important material and data carrying a great semantic load.

Memory, the processes of structuring and storing past experience to make possible its repeated use in *activity* or its recall to the sphere of *consciousness*. M. links the *subject*'s past with his present and future, and is a major cognitive function underlying development and teaching. Studies of M. are of interdisciplinary nature, since it occurs at all levels of life in various forms and includes not only retainment of individual experience, but also mechanisms of transmission of hereditary information. Recently, these studies have expanded owing to the appearance of computer technology for data storing and retrieving. Experimental studies of M. were initially started at the end of the 19th century by Hermann Ebbinghaus, a German psychologist, who used himself as a subject to chart the quantitative laws of memorisation, retention and reproduction of sequences consisting of nonsense syllables. This approach was subsequently continued in behaviourist studies of verbal learning (see *Behaviourism*). M. studies involving complex meaningful material began almost simultaneously. In the early 20th century, the French philosopher Henri Bergson contrasted "M. of the spirit", establishing comprehended single events from the subject's biography, to "memory-habit", resulting from mechanical repetition. The role of material organisation in memorising was emphasised by *Gestalt psychology*. *Psychoanalysis* attempted to explain *forgetting* phenomena through "suppression" of unpleasant, traumatic impressions from consciousness. Frederick Bartlett, a British psychologist, showed the complex reconstructive character of the process of recollecting stories and its dependence on cultural norms in a given society. The significance of socio-cultural factors in the development of various forms of human M. was stressed by the French psychologist Pierre Janet and the French sociologist Maurice Halbwachs. Soviet psychologists, basing on the methodology of dialectical materialism, developed a concept of M. as a purposeful action relying on the use of socially developed signs (see *Cultural-Historical Theory; Sign*). In addition to voluntary *memorising*, studies were also made of involuntary memorising. For instance, Pyotr Zinchenko and Anatoli Smirnov investigated the dependence of successful memorising upon its position in the structure of

activity. In ontogenetic development (see *Ontogenesis*) there is a change in methods of memorising and the role of distinguishing meaningful, semantic relationships increases. Various types of M., viz., motor, emotional, imaginal and verbal-logical, are sometimes described as stages of such development (Pavel Blonsky, Jerome Bruner, and Jean Piaget). Analysis of M. and *perception* disorders performed by Alexander Luria, Hans-Lukas Teuber, and Roger Sperry in the clinic of local brain lesions allowed them to establish that in dextral persons the processes in the left cerebral hemisphere are usually associated with verbal-logical memorising, and those that take place in the right cerebral hemisphere—with image memorising. Mnemonic events are based on changes in the activity of individual neurons and their populations, and also on more constant changes on the biochemical level (in RNA and DNA molecules). These processes are normally regarded as the substrate of two forms of M., namely short-term and long-term M. (see *Memory, Short-term*; *Memory, Long-term*), this having been confirmed by experimental psychological evidence about the differences in quantity and methods of storing and retrieving data in reproduction. Some analogy between the stages of data processing by humans and structural blocks of computers (see *Modelling*) had a noticeable effect in posing the problem of M. However, the functional structure of M. reveals much greater flexibility. For instance, the absence of a firm correlation of long-term memorising with verbal repetition processes in short-term M. is evidenced by data which show the possibility of successful recognition of a huge mass (as many as 1,000 and more slides) of complex object-structured visual material (faces, urban and rural landscapes, etc.). The potentials of *image* M. are exposed in cases of outstanding memory described in scientific literature, above all those involving so-called "*eidetism*". In psychological analysis of M., it is important to take into account that the latter is an element of the integral structure of human personality. As a person's motivations and needs develop, his attitude towards his past may change; as a result, the same knowledge may be stored in his M. in different ways.

Memory, Long-Term, a subsystem of *memory* ensuring durable (for hours, years, and sometimes decades) retention of knowledge, and also of *capabilities* and *skills*, and characterised by a great volume of stored information. The main mechanism of data input and fixation in M.,L.-T. is usually regarded to be *repetition*, which is achieved at the level of short-term memory (see *Memory, Short-Term*). Yet, purely mechanical repetition does not lead to stable long-term *memorising*. Besides, repetition serves as a requisite for fixating data in M.,L.-T. only in case of *verbal* or readily verbalisable information. Intelligent interpretation of new material, and the establishment of associations between that material and something

already known to the subject, are of decisive significance. The external, superficial form of the memorised communication, e.g. the precise sequence of words in a sentence, may be lost, but the meaning is retained for a long time. Given the enormous volume of information stored in memory, one can readily understand that successful search of data is only possible with well structured information. Judging from experimental evidence, several forms of knowledge organisation function simultaneously in M.,L.-T. One of them is organisation of semantic information in hierarchic structures by the principle of distinguishing more abstract, generic notions and more specific ones. Another form of organisation characteristic of commonsensical categories involves the grouping of individual notions around one or several typical representatives of a given category, i.e. prototypes. For example, a "table" may serve better as a prototype of the category "furniture" than a "cabinet" or a "sofa". Semantic information in M.,L.-T. involves both cognitive and affective elements which reflect different personal attitudes of the subject towards various types of information (see *Meaning; Personalised Meaning*). The study of information organisation in M.,L.-T. is an important means for diagnosing cognitive spheres and personality (see *Psychodiagnosis; Psychosemantics*).

Memory, Sensory, a hypothetical subsystem of *memory* which ensures retention for a very short period of time (normally, for less than one second) of the products of sensory processing of information arriving in the sense organs. Depending on the types of stimuli, we distinguish ikonic memory (vision), echoic memory (audition) and other forms of M.,S. Presumably, M.,S. retains the physical features of information; this distinguishes it from short-term memory (see *Memory, Short-Term*) and long-term memory (see *Memory, Long-Term*), which are typified by verbal-acoustic and semantic coding, respectively (John Atkinson). Yet, this distinction is conventional since preservation of physical (perceptual) features may be long-term, while distinction of semantic characteristics is already possible in relatively early stages of data processing.

Memory, Short-Term, a subsystem of *memory* that ensures immediate retention and transformation of data arriving from the *sense organs* and from long-term memory (see *Memory, Long-Term*). A requisite for transferring material from *sensory memory* to M.,S.-T. is said to be in giving that material due *attention*. Inner speech and frequent *repetition* usually taking place in the form of inner utterances play a key role in short-term retention of information. Two types of repetition are distinguished. The first type is of relatively mechanical nature: it involves sound articulation and does not lead to any noticeable transformation of the subjects-matter. This form of repetition allows to retain information at the

level of M.,S.-T., even though it is insufficient to transfer it to long-term memory. Long-term *memorising* becomes possible only with the second form of repetition accompanied by inclusion of the retained material into a system of associative relationships (for instance, by enlarging information units, i.e. by transition from uncoordinated letters to words, from words to sentences, etc.). Unlike long-term memory, M.,S.-T. can store only a very limited amount of information, not over 7 ± 2 units of material. Contemporary investigations show, however, that limitations in M.,S.-T. are no obstacle to memorising large volumes of comprehended perceptive material, such as landscapes, faces, and works of art. The synonyms for M.,S.-T. are "operational and immediate" memory.

Mental Actions, human actions (ranging from mathematical transformations to assessments of other people's behaviour) performed mentally without relying on external factors, audible speech inclusive. In this respect, M.A. differ from other forms of human actions (e.g. speech, physical actions). M.A. may be aimed at solving both cognitive [mental (see *Thinking*) and mnemonic (see *Memory*)] tasks and emotional (see *Emotions*) tasks. In Soviet psychology, M.A. have been studied with reference to problems of *general, developmental* and *pedagogic psychology* (mechanisms of specific mental phenomena, child's age possibilities, correlation of training and intellectual development, etc.). By controlling the development of M.A. (see *Stepwise Forming of Mental Actions, Concept of*), the psychologist can to some extent improve the process of training and purposefully influence children's mental development. In recent years, the results of studies on systematic development of M.A. are being increasingly used in preschool, school, and vocational training, and in institutions of higher learning.

Mental Development, natural change of psychic processes in time, manifested in their quantitative, qualitative and structural transformations. M.D. is characterised by irreversible changes and specific trend (i.e. ability to accumulate and "build up" new changes over the preceding ones), and also by their regularity, e.g. reproducibility of similar changes in individuals of the same species. M.D. is actualised in *phylogenesis* (establishment of mental structure in biological evolution of a given species, or in the socio-cultural history of all mankind and its individual ethnic, social, and cultural groups) and in *ontogenesis* (forming of psychic structures during the lifetime of an individual organism, human or animal). A special object of investigation is the formation and disintegration of the cerebral organisation of psychic structures (see *Neuropsychology*). M.D. theories are distinguished by interpretation of mind structure and conditions that determine its transformation. Concrete scientific theories of M.D. originated in the 19th century and were further

elaborated in child psychology (see *Developmental Psychology*), *animal psychology*, and *historical psychology* while experiencing the impact of Charles Darwin's evolutionary teaching (see *Functional Psychology*, *Behaviourism*). Attempts to distinguish specifically human, socio-cultural factors of M.D. were made in "völker psychologie" (psychology of peoples) (see *Ethnopsychology*) of Wilhelm Wundt and in the *verstehende* (understanding) *psychologie* of Wilhelm Dilthey and Eduard Spranger, who, basing on idealistic ideas about the spontaneous activity of spirit, accentuated the dependence of personality on cultural phenomena objectified in symbolic forms (see *Sign*; *Symbol*). The then incipient social psychology (Emile Durkheim) explained the development of individual mind as a process of *socialisation* understood as subordination of individual mind to supraindividual norms fixated in "collective representations". An eclectic approach to M.D. is prevalent in contemporary Western psychology, which lacks a generally accepted theory and methodology. Only two general tenets characteristic of most conceptions may be singled out. To begin with, two groups of factors that determine M.D. are distinguished, namely, natural capabilities and the ambient environment (most distinctly with William Stern, Karl Bühler, and their followers). Some psychologists (Gordon Allport) include personal activity differing from natural capabilities into a specific group of factors (see "*Humanistic Psychology*"). With regard to humans, psychologists (Jerome Bruner, George Mead, Jean Piaget, and Carl Yung) usually examine how the individual assimilates social norms and cultures objectified in symbolic forms to note that, under the influence of these forms, the structures of the mind change. Second, these psychologists recognise the presence of certain universal M.D. laws, for instance those that unite the ontogenesis and philogenesis of man's mind. Under the direct influence of Ernst Haeckel's biogenetic law, this idea was most clearly stated by Stanley Hall in his theory of *recapitulation*, according to which ontogenetic development of a child's mind reproduces the phylogenesis of humankind. In Soviet psychology, Marxist-Leninist dialectics is the general theory of development and the methodological foundation of M.D. theories. In the 1920 and 1930s, problems of M.D. were chiefly studied within the framework of child psychology, and subsequently also on the evidence of animal psychology, pathopsychology, and historical psychology. In this case, M.D. is an objective process of systems nature. Yet to distinguish its individual components (aptitudes and environmental factors), and to elucidate their correlations would still be insufficient to understand the true nature and conditions of M.D. To do that, one would have to regard M.D. as a process of successive human involvement in several practical social activities. *Interiorisation* of the structures of such activities would determine the forming of multi-level basic structures of psyche.

Mental Tension, a *psychic state* caused by the subject's anticipation of unfavourable trend of events. M.T. is accompanied by a feeling of general discomfort, *anxiety* and, sometimes, *fear*; however, unlike anxiety, it includes a readiness to master the situation and to act within that situation in a definite way. The degree of M.T. is determined by many factors, the most important of which are the power of *motivation*, the significance of the given situation (see *Personalised Meaning*), presence of similar *emotional experience*, *rigidity* (inflexibility) of mental functional structures involved in various types of *activity*. Among the factors that bring about M.T. the most significant ones are *frustrations* and *conflicts* in the area of meaningful personal relationships between the individual and his social surrounding. When M.T. cannot be resolved in real acts, it activates the *psychological defence* mechanism. In some interpretations, M.T. coincides with the notion of psychological *stress*. Depending on the impact on performance, one would distinguish operational and emotional M.T. Operational M.T., which is based on the prevalence of procedural *motives* of activity, has a mobilising effect on the individual and helps him to retain a high level of *work capacity*. The development of states of emotional M.T. is characterised by a pronounced negative emotional tinge of behaviour and by a break in the motivational structure of individual activity, and leads to a decline and disorganisation of its performance.

Method of Foster Children, see *Methods of Psychogenetics*.

Method of Semantic Differential, a method of constructing *subjective semantic spaces*. Suggested by the US psychologist Charles Osgood in 1952, it is used in studies connected with a person's *perception* and *behaviour*, with an analysis of social *attitudes* and *personalised meanings* in psychology and sociology, in the theory of *mass communications* and advertising, and also in aesthetics. M. of S.D. is a combination of methods of controlled associations and *scaling*. The measured objects (notions, images, personages, etc.) are assessed by a series of bipolar grade (three-, five-, seven-point) scale, the poles of which are usually given *verbally*. Along with the verbal, nonverbal semantic differentials have been elaborated, where graphic descriptions, picturesque paintings and photoportraits are used as scale poles.

Method of Semantic Radical, one of the objective methods of experimental semantics, elaborated by Alexander Luria and Olga Vinogradova (1959) and consisting in the analysis of *meanings* by singling out their associative fields. M. of S.R. is a conditional-reflectory technique that uses as a criterion of semantic proximity of the objects the transfer of conditional-reflectory *reactions* from one object to another which is semantically linked with it. Thus, in presenting a number of notions (for instance, "violin", "mandolin") of a definite semantic class (musical instruments), which are

accompanied by a negative reinforcement (electric shock), the further presentation of words that are semantically linked with the reinforcement arouse a defence reaction, while those more indirectly linked with the reinforcement (sonata, concert)—an *orientating reaction*. The semantic range of objects linked with reinforcements is built on the basis of recorded reactions. By the strength and character of the *reaction* (defense or orientating) one can distinguish the centre and periphery of the semantic range. *Generalisation* of a conditional-reflectory *reaction* is normally effected through semantic relations (violin—violoncello), and for the mentally retarded—by phonetic ones (volley—valley). M. of S.R. is valid for the study of unconscious processes in *categorisation*, for investigating the development of meanings in *ontogenesis*, when studying the dynamics of the formation of notions, in *general psychology*, *neuropsychology*, and *pathopsychology*.

Method of Twins, see *Methods of Psychogenetics*.

Methodology, a system of principles and methods of organising and constructing theoretical and practical *activity*, and also the teaching about this system. M. is realised in the organisation and regulation of all types of human activity, not only scientific but also technical, pedagogical, political, managerial, aesthetic and others. Initially M. was inexplicitly represented in people's practical relations with the objective world. An important role in its turning into a special sphere of rational cognition was played by training for mental *operations* (initially included in labour, and then separated from it), for their consistency and selection of the most effective way of achieving a *goal*. With the progress of production, technology and culture in general, M. becomes an object of philosophical *reflexion* and establishes itself as a system of socially tested principles and rules of cognition and activity in their correlation with the properties and laws of objective reality. The existing principles of M. turned into diverse forms and norms of logically correct, verifiable methods of obtaining significant results. The progress of M. was determined by the successes of material and spiritual production. Thus, the 18th-century scientific revolution, which was closely linked with the changing nature of people's production activity, resulted in the creation of a new M., which played an important role also in the origin of constructive approaches to the study of psychic processes in man. It is thanks to this M. that there appeared such subsections of psychology as the teaching on *reflexes*, on *associations*, on "passions of the soul" (see *Emotions*) and others. Subsequently M. was significantly enriched in connection with the general development of social practice and science and found a philosophical generalisation in the M. of dialectical materialism; moreover the dialectical method served not only as a means of theoretical cognition, but also an instrument

of the revolutionary transformation of reality. Dialectico-materialist M. adequately expresses the relations between theory and method, as well as the role of practice for cognition. Whereas theory represents the result of the process of cognition, M. determines the methods of accomplishing and constructing this knowledge. Thus, the principle of *determinism* guides research in elaborating physical, biological, psychological and social theories. In turn, having been verified by social practice, these theories can fulfil a methodological function, i.e. serve as the organising principle of a scientist's work. Dialectico-materialist M. is general in character, but it is concretised when applied to different spheres of practical and theoretical activity. One such sphere is *psyche*, the study of which presupposes the elaboration of corresponding methods. Hence dialectico-materialist M., functioning as a general system of explanatory principles and regulators, is used in psychology in accordance with the peculiarity of its object, which requires the elaboration and use of special concrete-scientific M. The present-day conditions characterised by direct interaction of a great number of scientific orientations and disciplines, make it imperative to develop so-called general-scientific methods, which ensure the increment of knowledge in many disciplines. Such are, for instance, the methods of cybernetics, the use of which in psychology enriched the latter with new approaches and solutions. The great variety of methods inevitably creates the problem of selection of the most adequate and prospective of them for solving special research problems. This induces us to examine M. from the viewpoint of its heuristics, i.e. its ability to ensure the appearance of new ideas in concrete *problem situations*. M. is directly associated with *world outlook*, for the entire system of its regulators and instructions presuppose the interpretation of both the foundations of research and its results on the basis of world outlook. In psychological studies M. of different orientations is linked with their world outlook. Thus, M. of *behaviourism* is closely connected with a mechanistic understanding of *behaviour*, in *Freudianism* the empiric study of a *personality* is determined by such world outlook orientations as irrationalism, the counterposing of the *personalised meaning* of life to its dependence on the social conditions of man's development, exaggeration of the role of sexuality. M. of Marxist-oriented psychology is based on a dialectico-materialist world outlook. The sphere of M. includes an extensive complex of concrete-scientific research methods: *observation*, *experiment*, *modelling* and others, which in turn are divided into a great number of special techniques for gathering scientific data. Different levels of M. (philosophical, general-scientific, concrete-scientific) are interconnected and should be considered as a system. The improvement of M. is closely connected with the progress of scientific, technological, organisational and other forms of activity.

Methods of Animal Psychology, methods of studying the animal behaviour, including *observation* and *experiment*. Observation of the natural behaviour of animals in their habitat is complemented by the study of their attitude to diverse objects, some of which are especially selected by the experimenter, and are sometimes presented to animal subjects in artificially created situations; the forms of *manipulation* with these objects are analysed. Experiments in animal psychology study the behaviour of animals in the course of resolving different problems. The basic experimental methods are: labyrinth method (finding the way to a goal object that is not directly perceived—fodder, shelter, etc.); roundabout method (finding the way to a goal object by avoiding one or several obstacles); method of simultaneous or consequent choice or differential taming (selecting objects—signals, drawings, etc.—distinguished by one or several indices that change in a definite way); open field method (giving an animal the opportunity of free choice of way and position in a fenced-off space and, if needed, increasingly complicated structurally with objects, shelters, etc.); problem cage (box) method (finding a possible way out of the cage or entering it by opening more or less complicated locking devices); method of using tools (resolving problems with the aid of extraneous objects, which should be introduced into experimental situations between animals and goal objects—moving the bait closer with poles or ropes, building pyramids from boxes, etc.). These and other methods are used to study the sensory and effectory abilities, orientating-investigatory behaviour, emotions and memory of animals, their ability for learning, generalisation and transfer of individual experience, for intellectual actions and others. Studies in animal psychology are of great importance also for other branches of the psychological science (especially general and child psychology), for philosophy (especially gnoseology), anthropology (pre-history of anthropogenesis), medicine (modelling on animals the psychopathological states of man, psychopharmacological experiments, etc.), as well as for cattle-breeding, pest control, service dog training, protection of the animal world, domestication of animals, animal farming and fisheries, zoological gardens, and other areas (see *Comparative Psychology*).

Methods of Personality Study, the sum total of methods and techniques for studying the psychological manifestations of a *personality*. According to the form and conditions of its application, M. of P.S. are divided into: experimental and non-experimental (for instance, analysis of biography), laboratory and clinical, direct and indirect, research and assessing (psychodiagnostics). The differentiation of M. of P.S. according to content is determined by the principles of interpretation of subject-matter of personality psychology. Depending on the dominant aspect of examination, M. of P.S. are divided into: (1) those studying the personality's *individuality*:

(2) those studying the personality as the *subject* of social *activity* and the system of *interpersonal relations*; (3) those studying the personality as an ideal representation in other people. In accordance with the first aspect, subjective and objective orientations are distinguished in the construction of M. of P.S. The subjective orientation is represented by projective (see *Tests, Projective*) and psychosemantic techniques (see *Method of Semantic Differential*; *Method of Semantic Radical*), aimed at characterising individual *consciousness*. The objective orientation, stemming primarily from the theory of personality traits, is represented by *personality inventories*, *scales* of interpersonal *perception* (see *Perception, Interpersonal*), techniques of assessing mental development and learning ability of an *individual*, a series of techniques assessing the psychophysiological characteristics of an individual. A certain unity of subject- and object-oriented research s achieved in the framework of interpretation of an individual's activity, proceeding from the interconnection of the stable and dynamic qualities in consciousness and activity—genetic methods of studying how the personality is being formed (see *Methods of Psychogenetics*), methods of studying *attitudes* and *dispositions*, situationally independent activity (see *Activity, Situationally Independent*), *level of aspirations*, etc.). Soviet psychology has demonstrated that data obtained in the study of personality as an individuality cannot be directly extrapolated to the characteristics of a personality as the subject of interpersonal relations—the individually typical emerges in quite different ways depending on the development level of the social unit in which the individual is integrated. In this connection (second aspect) socio-psychological methods of studying a personality in *groups* and *collectives* (*sociometry*, referentometry, methods of studying role behaviour, and others) are used. In the third aspect of constructing and using M. of P.S. a personality is studied both inside and outside interindividual interaction (ideal continuity of the subject in other people—*personalisation*), etc. In the framework of the above-mentioned orientation a special principle of studying a personality is formed: the method of reflected subjectivity (analysis of the individual's personality through its representation in the life activity of other people, their motivations, etc.).

Methods of Psychogenetics, methods making it possible to assess the influence of inborn factors and the environment on the formation of a psychic peculiarity of a person. The most informative is the twins method. It is based on the fact that monozygotic (one-ova) twins have an identical *genotype*, dizygotic (two-ova) are non-identical; moreover the members of any type of twin pair should have a similar educational environment. Then the greater inter-pair similarity of monozygotic twins compared to the dizygotic ones will bear out the presence of inherited influences on the changeability of

the property under study. A substantial limitation of this method consists in the fact that the similarity of the monozygotic twins' psychological properties themselves may be of a non-genetic origin. The genealogical method is the study of similarity between relatives in different generations. Required for this is an exact knowledge of the number of properties of direct relatives of the maternal and paternal lines and the study of the widest possible circle of blood relations; data on an adequate number of different families, making it possible to disclose the similarity of family trees, may also be used. This method is applicable primarily in medical genetics and anthropology. However, the similarity of generations according to psychological properties may be explained not only by their genetic transmission, but also by social continuity. The population method makes it possible to study the spread of individual gene or chromosome anomalies in human populations. Analysis of a population's genetic structure requires a large group of people, which should be representative, i.e. enabling the experimenter to make judgements about the population as a whole. This method is also more informative when studying diverse forms of hereditary pathology. As for the analysis of the inheritability of normal psychological properties, this method, taken in isolation from other psychogenetic methods, fails to provide reliable data, for differences between populations in the distribution of one or another psychological feature may be due to social causes, customs, etc. The method of foster children is comparison of similarity by some psychological property between a child and its biological parents, on the one hand, and the child and its foster parents, on the other. M. of P. presuppose a specific obligatory statistical processing for each method. The most informative methods of mathematical analysis require the simultaneous use of at least the first two methods (see *Psychogenetics*).

Microstructural Approach, a theoretical-experimental approach of present-day Soviet psychology. The task of M.A. is to study the coordination of *actions* and *operations*, which form the texture (microstructure) of different types of man's cognitive and executive *activity*. Much attention is devoted to studying the formation (microgenesis) of *perception, memorising, thinking, movements*. The experimental methods developed in the framework of M.A. complement the methods of formation of internal psychic actions and an analysis of the macrostructure of activity, making it possible to study the organisation of highly automated mental processes that are hidden from external and internal *observation*. Relevant studies have resulted in the establishment of regularities of perception and retention of information, processes of *task* solving and execution of complex movements in a three-dimensional environment (Vladimir Zinchenko, Boris Velichkovsky).

Military Psychology, a branch of psychology that studies the psycho-

logical aspects of various military activities with reference to specific socio-historical conditions, level of military technology, and personal and group characteristics, and also the methods involved in combat and political training (Konstantin Platonov). Soviet M.P., which appeared together with the Soviet Army, develops on the methodological basis of Marxism-Leninism, serves the interests of the armed defence of socialism, and is historically progressive in nature. Basing on psychological investigations, it works out recommendations for perfecting the theory and practice of screening, selecting, training and educating servicemen, and for improving party-and-political work in the armed forces, psychological training of servicemen, and command of personnel. The respective aspects of M.P. apply to the various arms and services, and its issues are examined from the angle of the Soviet military doctrine and the inferences of *social psychology*, *psychology of labour*, *engineering psychology*, *pedagogic psychology*, etc.

Mimicry, see *Expressive Movements*.

Mind, a generalised characteristic of personal cognitive possibilities, in opposition to *sentiments* and *will*. In a narrower sense, M. is the individual psychological characteristic of human intellectual abilities.

Mnemonics (Mnemotechnics), a system of different techniques which help memorise and increase the *memory* span by forming additional *associations*. One method of M. is the establishment of relations between the memorised objects and their distribution in an imagined, familiar space that is divided according to a definite principle. A pertinent example is *memorising* the sequence of colours in the spectre with the aid of phrases in which the first letters of the words correspond to the first letters of the names of colours ("Raising Onions in Your Garden by the New Villa"). In Ancient Greece some people used the M. method to acquire the ability quickly to memorise extensive, but often meaningless, material and demonstrated their art to the public. M. methods have only a secondary and auxiliary significance in raising the efficacy of memory, since the chief support of memorising are not artificial, but logically justified, meaningful relations both in what is being memorised (between its separate parts), and between the memorised material and something already known.

Mobility, a primary property of the nervous system constituting in the ability to rapidly respond to environmental changes. M. was characterised and studied by Ivan Pavlov, who suggested the basic techniques for diagnosing M., including those for determining the speed and ease with which nervous processes are replaced by processes with the same or opposite valence, and also the rate at which they occur and terminate.

Modality, one of the main properties of *sensations*, their qualitative characteristics (colour—in sight, tone and timbre—in hearing, character of smell—in smell, etc.). Modal characteristics of sensations, as distinct from their other characteristics (spatial, temporal, intensity), reflect the properties of objective reality in a specifically encoded form (a length of the colour wave is reflected as colour, the frequency of tonal waves—as tone, etc.). The notion of M. along with sensations refers also to other psychic processes, describing the qualitative characteristics of cognitive *images* of any level and complexity.

Modelling (in psychology), the study of psychic processes and states with the aid of their real (physical) or ideal, above all mathematical, models. The "model" is seen as a system of objects or *signs*, which reproduce some essential properties of the original system. The presence of a partial similarity ratio (homomorphism) makes it possible to use a model as a substitute or representative of the system under study. The model's relative simplicity makes such an exchange especially graphic. The creation of simplified models of a system is an effective way of verifying the correctness and fullness of theoretical concepts in different branches of knowledge. The first attempts to use M. in psychology are linked with the study of psychophysical relations (see *Psychophysics*) and memory processes. The systematic use of M. was characteristic of *Gestalt psychology*, which attempted to find a physical analogy in the formation of integral structures (*Gestalts*) in crystal-formation processes, change of the tension of pellicles, etc. The widespread use of this method in psychology began in the 1950s, when the development of cybernetics made M. possible in different areas of the purposeful *activity* of live creatures. This development was anticipated to a certain extent in the works of Soviet scientists Pytor Anokhin and Nikolai Bernstein, who created models of man's complex physiological functional systems, which contained all the main components of subsequent cybernetic models of *behaviour*. In a relatively short period there appeared mathematical models of learning, informational models of *memory*, *perception* and *attention*. M. embraced also the more complex types of intellectual activity, such as playing chess and solving diverse problems (Allen Newell, Herbert Simon). The understanding of psychic processes as analogous with the processes of computer calculations held out especially good prospects. Some authors attempt to find a structural similarity between the organisation of man's cognitive sphere and the structure of computer chips. This "computer metaphor" is particularly widespread in modern *cognitive psychology*. Others are attracted not by the computer's functional architecture, but by its calculation power. In this case M. actually merges with the work being carried out in such branches of cybernetics as *artificial intellect* and machine sight. Models of psychic and psychophysiological

functions represent machine programmes, the concrete realisation of which depends largely on the language chosen for programming. Despite the number of successful examples, the M. of psychic and psychophysiological processes (psycholinguistic models of *comprehension*, discerning systems, integral robots, etc.), the prevailing opinion is that for the creation of viable psychological theories the use of this method alone is insufficient. As a rule, it is impossible to give an unambiguous description of existing data with the aid of formal models. In order to lessen arbitrariness in interpreting these data, it is necessary to use the results of a qualitative psychological analysis.

Modification of Behaviour, a method of social behaviour regulation suggested by US psychologists who support *behaviourism*. It was first used as a clinical method of *psychotherapy* in treating *neuroses*, and later came to be used with respect to mentally healthy people with the aim of developing automatic habits ensuring their *adjustment* to the conditions of life in capitalist society. It is utilised primarily in juvenile correctional institutions and schools and sometimes in management psychology in the USA and Britain, and is used and often misused in prisons (see also *Social Psychology*; *Corrective Psychology*).

Mood, relatively protracted, stable *psychic states* of moderate or low intensity, appearing as a positive or negative emotional background of the individual's mental life. Unlike situational *emotions* and *affects*, M. is an emotional response not to the direct consequences of given events, but to their significance for the person in question within the context of his general life plans, interests, and anticipations. In turn, formed M's can affect direct emotional reactions to occurring events and correspondingly change the subject's trend of thought, *perception* (see *Social Perception*), and *behaviour*. Depending on the degree of awareness of the factors that have caused a given M., the latter is experienced either as an integral emotional background ("elevated", "depressed", and other kinds of M.) or as a distinctly identifiable state (boredom, grief, melancholy, fear or, conversely, enthusiasm, joy, elation, delight, etc.). The ability to control one's M. and to find and master ways for consciously correcting it (see *Self-Regulation*), comes out as an important task in education and self-education. Causeless changes in M. may be of pathologic origin if they are evoked by such individual properties as hyper worry, emotional instability etc. (see *Accentuation of Character*, *Sentiments*).

Mood, Public, the prevailing feelings and thoughts of various social groups at a definite time period. M.,P. is not only a mass phenomenon in social psychology, it is also a highly significant force compelling people to *activity* and leaving an imprint in the *behaviour* of various *collectives*, *groups* and social strata, and also classes,

nationalities, and even nations. M's, P. manifest themselves in all spheres of social activity: in production and everyday life, at demonstrations and meetings, in peace and war. A form of M.,P. is a mass mood capable of seizing and uniting highly varied social strata, groups and classes in a single social or political movement. The study of M.,P. is necessary to get an insight into the psychological sources of diverse ideological trends and to understand the socio-psychological mechanisms of mass social movements. M's,P. are characterised by a definite subject orientation (political, aesthetic, religious, etc.), and also by the character and level of emotional strain (apathy and depression or animation and enthusiasm). In addition to global manifestations or animation and manifestations (mass moods, moods of specific strata, classes, and peoples), M.,P. may also be of local nature, manifesting itself in the socio-psychological climate of the microenvironment (see *Climate, Socio-Psychological*). M.,P. also reveals itself in the personality's life activity to a measure in which his or her *mood* reflects the social circumstances of that activity and manifests his or her attitude to various phenomena and processes that take place in society (e.g. decadent moods in the period of social reaction).

Motivation, a process of inducing the *activeness* of an organism and determining its orientation. The term "M.", taken in a broad sense, is used in all spheres of psychology studying the causes and mechanisms of the purposeful *behaviour* of man and animals. Motivating factors may be divided into three relatively independent classes, in accordance with their manifestation and function. In analysing the question why an organism becomes active at all, we analyse the manifestation of *needs* and *instincts* as a source of activeness. In studying the question of what an organism's activeness is directed at, for the sake of what the choice is made of precisely these acts of behaviour, and not others, we above all analyse the manifestation of *motives* as causes determining the selection of a direction of behaviour. In solving the question of how the regulation of the dynamics of behaviour is realised, we study the manifestation of *emotions*, subjective *emotional experiences* (*aspirations, desires*, etc.) and *attitudes* in a subject's behaviour.

Motive, (1) inducement to activity linked with the satisfaction of a subject's *needs*; a set of external and internal conditions, which bring about a subject's *activeness* and determine its direction (see *Motivation*); (2) an object (material or ideal) inducing and determining choice of direction of activity for the sake of which object it is implemented; (3) the cause of which the person is aware, one determining the choice of a person's actions and deeds. Bourgeois psychology distinguishes a series of specifics of the nature and function of M. in regulating a subject's behaviour: inducing and directing functions of M. [*psychoanalysis, behaviourism, dynamic*

psychology, Kurt Lewin's "field" theory (see *Topological Psychology*), *ethology*], determination of man's behaviour with unconscious M's (psychoanalysis), the hierarchy of M's (psychoanalysis, "*humanistic psychology*" and others), a striving towards equilibrium and tension as a mechanism of the dynamics of M. A shortcoming of these studies is their isolation from the context of man's *activity* and his *consciousness*. In Soviet psychology the origin of M. is seen as caused by the general mechanism of the realisation of needs in the course of search activity and thereby turning its objects into M., "objects of needs" (Alexei N. Leontyev). Hence the central regularity: the development of M. proceeds through the change and expansion of the sphere of activity which transforms objective reality. In animals the range of objects which serve as M's are a gift of nature and is strictly limited by the set of instinctive forms of adjustment of each biological type. In man the source of development of M. is the free process of social production of material and spiritual values. Such potential M's in *ontogenesis* are objective values, *interests* and ideals inherent in a given society, which in case of their *interiorisation* by an individual may acquire the motivational force and become acting M's. These M's fulfil the function of meaning formation, i.e. lend a *personalised meaning* to the reality reflected in individual consciousness. The function of meaning formation is associated with control over the general orientation of an individual's activity. The control function is carried out not directly by M., but through a mechanism of "emotional correction" of behaviour (Alexei Zaporozhets): *emotions* evaluate the personalised meaning of the events that are taking place and if this meaning proved groundless M's change the general orientation of an individual's activity. The dynamics of M's in concrete situations is determined by situationally independent activeness (see *Activeness, Situationally Independent*), which leads to an individual's posing of superobjectives and the appearance of new M's of activity. The study of the motivational-semantic sphere constitutes the central problem of the psychology of *personality*, its historical and ontogenetic development.

Motives, Justification of, a rational explanation by a *subject* of the causes of *activeness* by pointing to socially admissible for him and his reference group (see *Group, Reference*) circumstances which induced him to make a given choice. M.,J. is distinguished from a person's real behavioural *motives* as one of the forms of realising these motives. With the aid of M.,J. an *individual* sometimes justifies his actions and deeds, bringing them into conformity with approved social norms of behaviour in a given situation and his personal norms. M.,J. may sometimes be used consciously by a subject to mask the real motives of his behaviour (see *Defence, Psychological*).

Movements, Involuntary, impulsive or

reflex motor acts performed without control of *consciousness*. M's,I. may be of an adaptive nature (e.g. blinking, withdrawing one's hand from a painful *irritant*) and of a non-adaptive nature (e.g. chaotic movements in case of dulled consciousness) (see *Psychoses*). M's,I. may be classified as strictly involuntary and postvoluntary. The former are formed without conscious control (unconditioned-reflex and conditioned-reflex movements; motor *skills* acquired through trial and error; innate and clinical *automatisms*, etc.), while the latter are formed as voluntary, but during the subsequent abbreviation of the *orientating basis*, in the course of the formation of movement, they leave consciousness, becoming automatic, involuntary. M's,I. may become voluntary only as a result of special training in forming a system of motor orientators (see *Movements, Voluntary*). Postvoluntary movements can again become voluntary without special training. However, if the system of realised orientators is absent (or extremely reduced), M's, I. are difficult to correct or change.

Movements, Voluntary, external and internal bodily acts (processes) consciously regulated by the subject on the basis of his *need* for reaching the *goal* represented as the image of the anticipated result. M's, V. presuppose a conscious orienting towards the goal both by means of speech and *representation* (*imagination*). M's, V. may be performed both by muscles of the body's external organs, and by the smooth musculature of the visceral organs (for instance, the blood vessels), which are responsible for vegetative functions. Experiments have shown that movements first formed as involuntary, may become voluntary, if the motor orientators are placed on an external plane (for instance, while observing the changing tone of vessels on the scale of a device) with the subsequent transformation of these orientators to the internal plane, to the form of specific motor (kinaesthetic) orientators. Initial forms of M's, V. can be found in lower animals, the so-called "instrumental" or operant movements in situations when an *irritant* is absent and the movement, which starts and occurs in its absence, finally allows the animal get hold of the object of its need (the prey).

Muscle Sensation, a complex of *sensations* that appear due to the work of an organism's muscle system. The notion of M.S. was introduced by Ivan Sechenov, who interpreted it as a special form of cognition of spatio-temporal relations of the environment, and not as a reflection of the condition of the muscle system itself (see *Receptor*). According to Sechenov, a weak perception of M.S. signals, its "darkness" gave Kant cause to consider space and time a priori forms of contemplation. At the same time thanks to M.S. (which presupposes an organism's *actions*) a person learns to compare objects, carry out simple operations of *analysis* and *synthesis*, i.e. goes through "an elementary school of object *thinking*".

N

Need (in psychology), an individual's state created by his necessity in objects essential for his existence and development. N. is the source of human activity. In human history, N's as the function of man's *activity* result from development of production. In this case, a natural object is no longer merely a catch, i.e. a thing with solely the biological significance of food. By means of labour implements, man can modify that object to adapt it to his own N's. In this way, human necessities can also develop, i.e. become the element of history. Production is connected with man through N's, not directly. Animal, organic N's transform into human, "extraorganic" N's mediated by objective activity. N. is both the premise and result of not only human labour activity per se, but of cognitive processes as well. It is for that reason that N. causes personal states instrumental in controlling behaviour and determining the course of human *thinking*, *sentiments*, and *will*. Human N's depend on the individual's *education* in the broad sense of the word, i.e. on the extent to which he is familiar with human culture, represented both objectively (in material N's) and functionally (in intellectual N's). The difference between these forms of culture and, consequently, between material and intellectual N's, is relative and determined by development of production. Satisfaction by man of his N's is, in effect, a process whereby he acquires a given form of activity conditioned by social development. In this case, "the satisfaction of the first need, the action of satisfying and the instrument of satisfaction which has been acquired, leads to new needs, and this creation of new needs is the first historical act." (K. Marx, F. Engels, *Collected Works*, Vol. 5, p. 42). The social characteristics of human N's are likewise derivatives of this structure of labour activity. Inasmuch as the process of satisfying one's N's takes on the form of purposeful activity, they are the source of a person's activeness (see *Activeness of Personality*). In subjectively comprehending the *goal* as his N., an individual becomes convinced that the N. can be satisfied only by achieving the goal. This allows him to correlate the subjective ideas of his N. with its objective contents by looking for means to gain that goal as an object. N's reveal themselves in *motives* (*drives*, *desires*, etc.) by prompting a man to activity and becoming a form through which they manifest themselves. Whereas in N's human activity is essentially dependent on their objective social essence, in motives that dependence is seen in the form of the subject's own activeness. Hence, the system of motives revealing themselves in individual behaviour is more characteristic and mobile than the N. that constitutes its essence. Forstering N's inherent in the man of socialist society is the central task in educating *personality* under developed socialism.

Negativism, unmotivated *behaviour* of a subject, expressed in actions intentionally opposite to the requirements and expectations of other individuals or social groups. As a situational *reaction* or personal feature (with the exception of clinical cases of senseless resistance), N. is caused by the subject's need to assert himself or herself, to protect his or her ego, and is also the result of *egotism* and *alienation* from the needs and interests of other people. Psychologically, N. is based on the subject's *attitude* to negation of specific requirements, expectations, and forms of communication among members of the given social group. It is a predisposition to protest against that group, and to repudiate the given *personality* as such. Situational negativist reactions are observed in children during "crises" of growth and are manifested in stubbornness, capricious behaviour, and senseless demands.

Neobehaviourism, a trend in US psychology developed in the 1930s. Neobehaviourists accepted the main postulate of behaviourism, according to which psychology studies the objectively observed *reactions* of the organism to environmental *stimuli*, and supplemented it with the concept of *intervening variables* as factors that serve as a conditioning link between stimuli effects and reactive muscle movements. In line with the methodology of operationalism, neobehaviourists thought that the substance of the concept "intervening variables" defining the "unobservable" cognitive and motivational (see *Motivation*) components of *behaviour* is revealed in *laboratory experiments* by indicators contained in the researcher's *operations*. N. was indicative of the crisis of "classical" behaviourism, which could not explain the integrity and purposefulness of behaviour, its controllability by information about the surrounding world, and its dependence on the *needs* of the organism. Using the ideas of *Gestalt psychology* and *Freudianism* (Edward Tolman), and also Pavlov's teaching on higher nervous activity (Clark Hull), neobehaviourists sought to overcome the restricted nature of the original behaviourist doctrine. Yet they preserved its postulate aimed at biologising human mentality.

Neo-Freudianism, a psychological trend whose advocates try to overcome the biologism of classic Freudianism and introduce its basic tenets into a social context. Among the better known representatives of neo-Freudianism are Karen Horney, Erich Fromm, and Harry Sullivan (all from the United States). According to Horney, *neuroses* are caused by *anxiety* which arises in a child when encountering a hostile environment, and anxiety that grows stronger when his parents and other people do not provide him with enough *love* and attention. Fromm explains neuroses by the individual's inability to achieve harmony with the social structure of modern society, which allegedly forms in the individual a feeling of loneliness and alienation from his fellow men and gives rise to neurotic ways for ridding himself

of that feeling. Sullivan sees the source of neuroses in *worry* states that arise in *interpersonal relationships*. Despite its apparent attention towards factors of social life, N.-F. regards the individual with his unconscious *inclinations* as primordially independent of and conflicting with society. Besides, it regards society as a source of "general alienation" and as hostile to the fundamental tendencies of *personality* development.

Nervous Model of Stimulus, a configuration of the trace left in the *nervous system* by a repeated *irritant* with fixed parameters. The concept of N.M. of S. was suggested by Yevgeni Sokolov. After the multiple repetition of a stimulus, one observes selective extination of an *orientating reflex* only to that stimulus. The nervous system responds to change of any stimulus parameter (distribution in time and space, intensity, colour, etc.), by a more intense orientating reflex. N.M. of S. performs the function of a self-adjusting, multi-dimensional filter which selectively suppresses the orientating reflex to a recurring stimulus.

Nervous System, a totality of nerve formations in animals and humans with which they perceive the irritants that act on the body, work off the *excitations* occurring therewith, and develop *reactions*. The N.S. ensures the functioning of the organism as a single whole. It includes the central, peripheral and vegetative N.S's. The central N.S. consists of nerve tissues of the *brain* and spinal cord, whose main elements are nerve cells, *neurons*. The peripheral N.S. is represented by afferent (sensitive) nerves that conduct impulses from *receptors* (units that serve to turn optical, mechanical, chemical, and heat energy of the external and internal media into nervous impulses) to the central N.S., and by efferent (motor) nerves that conduct impulses from the central N.S. to the skeletal muscles. The vegetative N.S. services internal organ muscles and glands. The activity of the central N.S. is subordinate to the *reflex* principle. A reflex is a reaction to receptor excitations. Depending on irritation intensity, the frequency of nervous impulses from the receptors would change. A reflex of a normal animal, e.g. one oriented in response to environmental changes, is achieved via the cortex and constitutes the integral reaction of the whole organism. This reaction is associated with *inhibition* of other nerve mechanisms. The mechanism of inverse afferentation from vital organs, viz. the information about reaction results, plays an important role in rendering the reaction normal. The nature of a reflex reaction is determined not only by anatomic factors, but also by the functional state of the central N.S. if some nerve centre is in a state of hyper excitation, a stimulation may primarily excite that centre by the *dominant* principle. Reflexes are classified into innate (unconditioned) and those acquired in individual life (conditioned) (see *Unconditioned Reflex*, *Conditioned Reflex*). Conditioned reflexes come

out as a central psychological phenomenon in the function of the cortex and signify the development of new (temporary) associations. If a repeated irritation does not serve to satisfy some vital need, the reaction thereto would attenuate and disappear. Cortical inhibition underlies this attenuation. The cortex performs various forms of mental activities.

Neurolinguistics, a branch of psychological science marginal with psychology, neurology and linguistics, which studies the brain mechanisms of *speech* and the changes in speech processes that arise as a result of local brain lesion. The forming of N. as a discipline is linked with the development of *neuropsychology*, on the one hand, and linguistics and *psycholinguistics*, on the other. In line with the concepts of contemporary neuropsychology, N. regards speech as a systems function, and *aphasia* as a systems disorder involving the primary defect and secondary disturbances occurring as a result of the primary defect, and also owing to functional reconstructions of the work of the brain aimed at compensating the impaired function. The current stage in the development of N. is connected with the works of Alexander Luria and his followers, who combined the systems analysis of speech disturbances with theoretical linguistic and psycholinguistic concepts (for instance, the phoneme theory of Jan Baudoin de Courtenay, Nikolai Trubetskoy, Lev Shcherba and others.

Neuron, a nerve cell with all its extensions, the main structural unit of the *nervous system*. N. consists of a body, ramified extensions (dendrites), and a long extension (axone), and also of terminal systems. N.'s main function is to generate *excitation*, which is conducted by the axone in the form of short-term electric signals, nervous impulses.

Neuropsychology, a branch of psychological science marginal with psychology, medicine (neurology and neurosurgery) and psychology. N. studies the brain mechanisms of *higher mental functions* with reference to local lesions of the brain (see *Compensation of Mental Functions*). Alexander Luria, the founder of neuropsychology in the USSR, developed the ideas of Lev Vygotsky about the social determination and systems structure of higher mental functions and produced a theory of the systems dynamic localisation of mental processes (see *Localisation of Higher Mental Functions*), which is the theoretical foundation of N. Contemporary N. is subdivided into several branches: clinical, rehabilitational, experimental, psychophysiological, and children's. N. uses a *syndrome* analysis of disturbances in higher mental functions to qualify these disorders and diagnose brain lesions. The analytical methods developed by Luria represent a set of special tests with reference to various cognitive processes (different types of *perception*, *memory*, *speech* functions, and *thinking*), and arbitrary *motions* and *actions*. These methods were used

to study various neuropsychological syndromes, the stable combinations of disorders of higher mental functions in lesions of various brain structures. N. has major significance for developing the general methodological and theoretical foundations of psychological research, and for diagnosing local lesions of the brain and resuscitating its impaired functions.

Neuroses, Clinical, a basic form of neuropsychic disorders. N.,C. are caused by the so-called neurotic conflict, which involves a disturbance of human vital and meaningful relationships originating from childhood and activating in *situations* that cause mental traumas. In neuroses, organic changes in the *brain* are mostly absent. Three basic forms of N.,C. are distinguished, namely neurasthenia (nervous exhaustion), hysteria, and neurosis of obsessive states. Neurasthenia, being accompanied by physical exhaustion, is characterised by disturbed functions of the vegetative nervous system, hyper irritation, fatigue, lacrimation, and feelings of gloom and inadequacy (see *Depression*). The hysteric forms of N.,C. are extremely diverse and often take the form of diseases, such as paralyses, various seizures, impaired pain sensibility and coordination of movements, stammering, various *speech* disturbances (ranging from aphasia to total muteness), etc. Deep forms of hysteric N.,C. may turn into psychotic disorders accompanied by deliration. Neurosis of *obsessive states* is characterised by the appearance, following some severe mental trauma, of various obsessions, *phobias*, increased *anxiety*, depressed states, and various vegetative disturbances. Methods of treatment of N.,C. are based on a combination of pharmacological therapy with various kinds of *psychotherapy*, viz. pathogenic, behavioural, group, etc. The contemporary theory of N.,C. recognises the multifactor nature of these diseases, but at the same time underlines the leading role of psychological aspects in their origin and treatment.

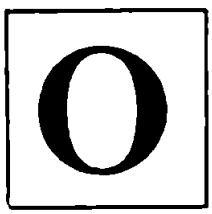
Neurosis, Experimental, a state induced in animals under special conditions of a physiological *experiment* and characterised by disturbed adaptive behaviour, incapability to develop new and repeat old *conditioned reflexes*, refusal to eat, vegetative disorders, and sleep disturbance. Being a model of clinical neuroses in human beings, N.,E. is used to study the mechanisms of higher nervous activity.

Neuroticism, a state characterised by emotional instability, *anxiety*, low self-respect, and vegetative disorders. N. should not be identified with neurosis, since neurotic symptoms may be shown by healthy individuals, too. N. is generally assessed by special scales or *personality inventories*.

Next Development Zone, the difference in the level of difficulty of *tasks* solved by a child independently (the present level of development) and under the supervision of an adult. This concept was introduced by Lev

Vygotsky, who showed that the real correlation between mental development and the ability to learn can be revealed by establishing the existent development level of the child and his N.D.Z. Creating the N.D.Z. in education "brings" development: education is only effective when it "leads" development. The notion "N.D.Z." served as a basis for the concept of the correlation of education and mental development of the child in Soviet *developmental* and *pedagogic psychology*.

Novelty Effect, see *Recency Effect*.



Object of Reference Relationships, an *individual* or *group* as a basic structural element of reference relationships, to which their subject consciously or unconsciously refers himself, accepting and actualising in his behaviour the standards, norms, and values of the object, or by orienting himself to those relations (see *Referentiality*). One should distinguish positive and negative O's of R.R. An object with whose values and behavioural standards the subject of reference relations actively "disagrees" is commonly regarded as the negative O. of R.R. In this case, he would behave as if he seeks to be condemned by the O. of R.R. for his behaviour. An object whose values and behavioural standards are reference-points for the subject, whose "approval" he apparently seeks to obtain, is considered a positive O. of R.R.

Object-Reflecting Relationships, an interiorised (see *Interiorisation*) system of an individual's reflexive associations with other people (see *Reflexion*) based on the ability to mentally reflect the attitudes of the "other", and others' notions about the peculiarities of one's own vision of a given thing (object or problem). O.-R.R. are a component of a person's cognitive activity. Reconstruction of other persons' views concerning a given object allows to perceive new aspects therein, stimulates critical *thinking*, and allows to reflect in the form of an inner dialogue with *significant other* persons. The major characteristics of O.-R.R. are as follows: (1) adequacy, i.e. accurate reproduction of the "viewpoint" of another person about the object of reflexion; (2) depth, determined as the number of simultaneously reproduced and correlated objective attitudes; and (3) orientation, representing dominant reference groups (see *Group, Reference*), whose objective attitudes become the main object of reflexion in a given situation. O.-R.R. are a qualitatively specific level of interiorised *interpersonal relations* mediated by the object of joint activities. The forming of O.-R.R. is prevented by an individual's egocentric position in interaction (see *Egocentrism*), and by *projection* of his own ideas to other people. An individual's interest in the objective position of other people in the course

of collective activity is a major prerequisite for greater O.-R.R. adequacy.

Object-Related Activity Approach (to studying man's psyche), (1) a study of man's *psyche* based on Marx's category of object-related *activity* (Mikhail Bassov, Sergei Rubinstein, Alexei Leontyev, and their disciples); (2) the theory which views psychology as a field dealing with the origins, functioning and structure of psychic *reflection* in the process of man's activity (Leontyev). The analysis of the transformation of psychological reflection in the process of activity studied in its phylogenetic (see *Phylogenesis*), historical, ontogenetic (see *Ontogenesis*) and functional development serve as an initial method of studying psyche. The basic principles of O.-R.A.A. are: development and historicism, object relation; activeness including situationally (see *Activeness, Situationally Independent*) activeness as a specific feature of man's mind; *interiorisation-exteriorisation* as mechanisms of acquiring sociohistorical experience; unity of the external and internal structures of activity; the systems analysis of psyche; the dependence of psychic reflection on the position of the reflected object in the structure of activity. In the context of O.-R.A.A., psychologists have singled out criteria for the emergence of psyche as well as the stages of psyche development in phylogenesis, and elaborated the following conceptions: on the leading activity as the basic and driving force of the development of psyche in ontogenesis; on assimilation as an *image*-forming pattern; on the structure of activity (activity, action, operation, psychophysiological functional systems); on the meaning, *personalised meaning* and senses as forming factors of *consciousness*; on the hierarchy of *motives* and personalised meanings as personality-forming units. O.-R.A.A. serves as a concrete and scientific methodology in specific branches of psychology (developmental, pedagogical, engineering, medical, social, etc).

Object-Value Unity of a Collective, normative integration of individual activities in a group, when each activity is determined by a common *value* essence of the object of *joint activities*. O.-V.U. of C., a major component of social *group integration* as the aggregate subject of activity, manifests itself in close value judgements of group members about the object (*goal*) of their joint activities, and also in the unity of implementation (*actualisation*) of those ideas in concrete activity. O.-V.U. of C. is naturally engendered by socially-conditioned joint activities, and may be regarded as a manifestation of the maximal development of collective integration (see *Value-Orientation Unity*).

Observation, a principal empirical methods in psychological research, which involves systematic and purposeful *perception* of behavioural or mental phenomena aimed at studying

their specific changes in certain conditions and to finding their meaning. O. includes elements of theoretical *thinking* (idea, methodological procedures, interpretation and control of results) and quantitative analytical methods [*scaling*, data factorisation (see *Factor Analysis*), etc.]. Accuracy in specification of observational data would depend on the state of knowledge in a given field and on the *task* to be resolved. The observer's experience and skills would substantially affect the results of O. In psychological interpretation of human *behaviour*, the observer's past experience is not restricted to his scientific concepts, but includes his common sense stereotypes, attitudes, *value orientations*, etc. Despite all precautions, observation is always influenced by certain subjectivity; it may create an *attitude* facilitating observation of a significant fact, which might cause experimenter's demand. Awareness of dangers of premature generalisations and hurried conclusions, repeated O., and control by other research methods contribute to the objectivity of O.

Obsessions, a variety of *obsessive states* expressed in *emotions* and *actions* that do not require specific situations to arise (e.g. obsessive desire to wash one's hands, fear of the number "6" because the word "cancer" has six letters, fear to step on a line, etc.). The synonym for O's is "anancasms". O's are observed in many patients characterised by scrupulousness, pedantism, tendency towards formalism along with spiritual inertness and anxious diffidence.

Obsessive States, involuntary, distressing thoughts, ideas or stimulations to *action*, which suddenly appear in consciousness and are perceived by the individual as alien and emotionally disturbing. The term was introduced in 1868 by the German psychiatrist Richard von Kraft-Ebing. Even though the patient often regards O.S. as morbid and interfering he cannot overcome them. For instance, in case of an obsessive fear of catching a disease, when a patient would continually wash his hands till literally "washing them off" he understands that his fear is illogical and that it is silly to do that or other similar things but still persists in doing them to alleviate internal mental stress underlying his O.S. O.S. are manifest in the intellectual, emotional (*phobias*) and motor spheres. They are the main symptom in certain types of *neurosis*, and are also encountered in schizophrenia, psychopathy, and organic lesions of the *brain*. Sometimes they develop in healthy individuals in the state of *tiredness* or *anxiety*. The defensive-adaptive mechanism of various O.S. is explained by the fact that, initially, an amorphous, pointless affective tension would turn into definite O.S. which would allow the patient to lower the level of his inner stress, albeit the very content of O.S. may be highly tormenting. Hence, it is not advisable to "break" "obsessive shields" with large doses of neuroleptics (see *Psychopharmacology*), for this would help strengthen and "let out" a purely affective disorder (acute *anxiety* or anguish).

In severe forms of O.S. patients are found to have paradoxical forms of response: maximally intensified defence reactions against imaginary hazards with concomitant sharp alleviation of adequate instinctive forms of response to really harmful factors or dangers. For instance, patients with various O.S. may react calmly to the fact that some malignant disease has been detected in them.

Obstinacy, a feature of *behaviour* (in stable form, a trait of *character*) representing a shortcoming in the individual's volitional sphere, manifesting itself in the desire to act by all means as one would, in spite of reasonable arguments, requests, counsel, or instructions by other people. O. may be caused by feelings of offence, spite, anger, or vengeance. In children, O. may be a form of protest to show discontent with unjustified suppression of their growing independence and initiative.

Oedipus Complex, a central *Freudian* concept; a complex of ideas and feelings, chiefly unconscious, arising in early childhood and involving a sexual drive towards the parent of the opposite sex and the desire to physically eliminate the parent of the same sex. O.C. causes the individual to feel guilt and this feeling leads to a conflict in the sphere of *the unconscious*. The conflict is resolved by identifying oneself with the parent of the same sex, and leads the individual to normal sexuality. The term O.C. was coined after King Oedipus, a hero of a Greek myth who killed his father and married his mother, unaware that they were his parents. According to Freud, O.C. in girls corresponds to the Electra Complex (according to a myth, Electra killed her mother to avenge her father's death). O.C. shows Freudianism's general tendency to universalise some specific mental disorders.

Oligophrenopsychology, a branch of *special psychology* which studies mental development and possibilities for its correction in people with severe forms of brain deficiency. O. reveals the causes of their mental retardation (the inborn defects of the nervous system, the result of a disease or trauma), studies their psychic features, forms and degrees of said defects (morons—mild retardation; imbeciles—moderate retardation; and idiots—severe retardation), and helps develop programmes and methods for teaching those persons in special schools.

Ontogenesis (Ontogeny), the development of an individual organism. In psychology, O. is the process of formation of the basic structures of individual *psyche* throughout childhood. The study of O. is the principle task of child psychology (see *Developmental Psychology*). From the viewpoint of Soviet psychology, O. chiefly deals with child's object-related *activity* and *communication* (1), primarily with regard to activity and communication (1) with adults. In the course of *interiorisation*, the child "implants", "appropriates" social sign-symbol structures and means of that activity and communica-

tion (1) to thereby form his *consciousness* and *personality*. Soviet psychologists also hold a common view that O. is a social process realised under the active and purposeful influence of society.

Operant Conditioning, a term introduced by the US psychologist Burrhus Skinner to designate a special way in which conditioned relationships (see *Conditioned Reflex*) form. Unlike the classic (Pavlov's) way, which Skinner called respondent, in O.C. the animal first makes a certain movement (spontaneous or initiated by experimenter) and then receives a *reinforcement*. Skinner makes this distinction irrespective of the biological meaning of conditioned reflexes. In this case, he fails to take into account the highly important role of the animal's active *orientating activity*, by means of which the former defines a *situation* and establishes meaningful relationships between environmental elements and its own movements, which largely predetermines the course and dynamics of conditioned reflexes.

Operation, a unit of *activity*; a way of performing an *action* as determined by the existing (external or mental) *situation*. O. as a concept was introduced by Alexei N. Leontyev, and is used in studying relatively complete and, as a rule, automatic perceptual, motor, mnemonic and intellectual acts composing a given action. Unlike activity and action, O. is determined not by *motives* and *goals*, but by conditions of an objective situation in which various socially developed patterns of *behaviour* (for instance, patterns of using tools or definite rules of etiquette accepted in a given culture) are exteriorised in the form of meanings, the said patterns fully conditioning the substance of O. Depending on the origin, two types of O. are distinguished, namely, adaptive and conscious. Adaptive O's are retroactive responces, hierarchically the lowest in the structure of the subject's activity. They arise in the course of involuntary *imitation* of or adaptation to objective conditions in a given situation, e.g. adaptation of a child to language conditions, as a result of which he learns various grammatical forms used in oral *communication* (1). Adaptive O's are characterised by three distinctive features: (a) involuntary with regard to regulation; (b) initially unconscious with regard to the level of awareness; and (c) rigid with regard to their dynamics. Conscious O's result from automatic actions. When an action is repeated many times (for instance, in teaching how to drive a car or to write), its purpose, first realised by the subject, would, in the structure of another more complex action, be a condition for its performance. Due to the changed position of purpose in the structure of activity, to the shift of the purpose to a condition that had occurred when the action was automatic, this action turns into a conscious O. Conscious O's are subject to voluntary control; with regard to the level of awareness, they are secondarily unconscious (but may be realised when difficulties arise in the course of their execution); and

with regard to their dynamics, they are flexible (labile). A stable and purposeful course of a given O. would be determined by the *attitude*.

Opponent Set, a set of *"significant others"*, polemics with whom regulates the subject's *creative activity*. To find out the O.S. is an important condition for socio-psychological analysis of the dynamics of creative activity and its dependence on *interpersonal relations* (Mikhail Yaroshevsky).

Orientating Activity, a set of actions aimed at active orientation in a specific *situation*, at analysing it and *behaviour* planning. The term "O.A." goes back to Ivan Pavlov, who distinguished the *orientating reflex* from a number of other *reflexes* as a special form of organism *activeness* and indicated its specific function (to establish a relationship between *signal*, *reaction*, and *reinforcement*), and the "biological prudence" resulting from this reflex. We distinguish orientating reflex proper (adjustment of *analysers* to better irritant *perception* and *inhibition* of preceding activity) and orientating (orientating-research) activity. The basic and most general tasks of O.A. are: analysis of a *problem situation*, establishment of relationship between the situation elements and their actual meanings, elaboration of a plan of action, and in the course of implementing that action, accomplishment of its control and correction. An essential condition for performing O.A. is the presence of various forms of psychic *reflection* which, being included in the structure of O.A., ensure the actualisation of its functions, namely, preparation, regulation and control of a subject's behaviour in individually varying situations. Human O.A. essentially differs from animal O.A. in that in planning and regulating his behaviour a human being relies on knowledge accumulated by society about objects and ways of handling them, about their social *meaning* and social forms of relationships.

Orientating Basis of Action, a system of personal *representations* about the *goal*, plan and means for performing a future or current *action*. The term was introduced by Pyotr Galperin (see *Stepwise Forming of Mental Actions, Concept of*). O.B. of A. largely predetermines the quality of an action. For instance, complete O.B. of A. ensures systematic correct performance of an action in a preset range of situations. O.B. of A. should be distinguished from the scheme of O.B. of A. as a set of reference points and instructions suggested to a given subject. The form and way of setting the scheme of O.B. of A. would depend on teaching purposes and the students' age and individual traits. Three types of scheme of O.B. of A. and, correspondingly, three types of teaching are to be distinguished. With the first type, the subject deals with a basically incomplete system of conditions, and is compelled to complete it with the help of the *trial and error method*; the final action structure is formed slowly and is understood far from always and

fully; individual indicators are highly dispersed, and the formed action highly sensitive to interference. With the second type, the subject orients to a complete system of reference points and takes into consideration the entire system of conditions for performing the action correctly, which guarantees its faultlessness from the very outset. In this case, the scheme of O.B. of A. is either set in ready form, or developed by the students together with the instructor. The third type of teaching is characterised by a person's complete orientation to the structural principles of the material under study, to its component units, and to their combination laws, not to the conditions in which a concrete action is achieved. Such O.B. of A. ensures exhaustive analysis of the material under study and the forming of cognitive *motivation*.

Orientating Reaction, see *Orientating Reflex*.

Orientating Reflex, a complex *reaction* by animals and humans to a *stimulus* novelty, which Ivan Pavlov termed the "what is it?" reflex. The biological purpose of O.R. is to create conditions for better *irritant perception*. This is achieved through a complex of somatic, vegetative reactions and through a change in the *activation* level of the central *nervous system* at general *inhibition* or disturbance of the current activity of an organism. Three principal groups of O.R. components are distinguished: (1) locomotor; (2) vegetative; (3) changed activation level of the central nervous system. The following relate to the locomotor components of O.R.: (1) reactions that ensure turning of the eyes in the direction of the visual irritants, pricking up of the ears, and sniffing; (2) reactions ensuring a given posture and approach to the stimulus. The vegetative components of O.R. include vascular reactions in the form of constriction of extremity vessels and dilation of cerebral vessels that ensure increase of blood circulation in the brain, the *galvanic skin response* (GSR), and changes in the heart and respiration rate. Apart from stimulus novelty, the following exciters of the O.R. are distinguished: stimulus range, ambiguity, and/or some amazing quality. When the stimulus and the trace previously left by other stimuli (see *Nervous Model of Stimulus*) coincide, O.R. does not occur. As the new stimulus causing O.R. is repeated, the latter is extinguished.

P

Paedology, a trend in psychology and pedagogy that developed at the turn of the 20th century and was caused by the spread of evolutionary ideas and the development of applied branches of psychology and of experimental pedagogy. The founders of P. were Stanley Hall, James Baldwin, Ernst Meumann, Wilhelm Preyer, and others. P. consists of a set of psychological, anatomo-physiological, biological, and

sociological approaches to child development; however, these approaches proved to be interlinked purely automatically. In Russia, P. became widespread before the October revolution, and by the late 1920s even tried to monopolise the right to child study and absorb relevant psychological and pedagogical disciplines. Despite numerous discussions and theoretical works by representatives of P., its subject-matter was not specified, and attempts to divorce it from related sciences were unsuccessful, albeit research by Soviet scholars did accumulate vast empirical material on child behaviour. In the 1930s, erroneous methodological and practical tenets on P. were subjected to criticism in the USSR.

Pain, a *psychic state* arising from highly intense or damaging effects threatening the organism's survival or integrity. P. is a highly valuable acquisition of animal evolution. The clinical significance of P. as a symptom of disturbed development of normal physiological processes is exceedingly high, since some pathological processes in the human body already show themselves in painful *sensations* prior to external symptoms of the disease. From the viewpoint of emotional experience, painful sensations are depressive and distressing in nature, often tantamount to suffering, and serve as *stimuli* for various defence *reactions* aimed at removing external or internal *irritants* that had caused these sensations. Painful sensations form in the central *nervous system* as a result of combined processes starting in receptor formations located in the skin or internal organs, from which impulses along special paths arrive in the *brain* subcortical systems that dynamically interact with processes in the cerebral hemispheres' cortex. Pain response is the most inert and intense unconditioned reaction. Painful sensations are to some extent subject to the influence of higher mental processes associated with cortex activity and dependent on such personal traits as *orientation*, *beliefs*, *value orientation*, etc. Numerous examples are indicative of both personal courage and ability not to succumb to P. and to act in line with high moral *motives*, and of cowardice, of preoccupation with painful sensations.

Pantomimicry, see *Expressive Movements*.

Paradigm, a system of basic scientific achievements (theories and methods) used as a pattern to organise research into a given sphere of knowledge (discipline) in a definite historical period. The notion was introduced by Thomas Kuhn, a US historian who distinguished various stages in the development of a scientific discipline, namely the preparadigmal (preceding the establishment of P.), domination of P. ("normal science"), its crisis, and revolutionary development involving the replacement of P., i.e. transition from one P. to another. The problems posed by P., viz., concerning a scientific discipline and its development stages, the scientific community as a collective subject of cognition,

etc. are studied by Soviet scientists from the viewpoint of dialectical and materialist *methodology*. In discussions concerning the applicability of P. in psychology, US authors have voiced the view that the early 20th century witnessed the replacement of introspective P. (the psychology of consciousness) by behavioural P. (behavioural psychology). However, this opinion is erroneous, for it gives a one-sided view of the actual development of psychology as a scientific discipline (see *History of Psychology*).

Paramnesia, deceptions of *memory*, "false recollections". Most often, P. is understood to represent mnemonic disorders in which events taking place in a given moment appear to be familiar as those that had already been experienced. *Emotions* and *affects* normally play an important role in the arisal of P., as also does reassessment of one's own contribution to the outcome of certain events in the past. Contemporary *medical psychology* links P. with *marginal states* (*stress*, acute and chronic *tiredness*), psychasthenia, and other changes in the functioning of the central *nervous system*.

Paraphasia, a speech utterance disorder which manifests itself in incorrect use of specific sounds (letters) or words in oral and written speech. Two forms of P. are distinguished: (1) literary P., involving mistaken replacement of specific sounds (or syllables) in words and based on sensory or motor disorders in speech; (2) verbal P., involving replacement of certain words by other close in meaning, this being caused by mnemonic or semantic disorders of speech. It may also be a combination of specific elements of different words in one word (see *Contamination*).

Parapsychology, designation of hypotheses and concepts pertaining to psychic events whose explanation lacks strictly scientific grounding and to which psychologists primarily assign so-called extrasensory perception, i.e. reception of information otherwise than by the *sense organs* known to science, e.g. through telepathy, clairvoyance, etc. Studies of P. phenomena began in the late 19th century, and though they did not bring about conclusive evidence concerning their nature and mechanisms, they helped learn the psychological regularities of *hypnosis*, *ideomotor acts*, *subsensory perception*, phenomenal *memory* and remarkable abilities for mental arithmetic, etc. The phenomena which P. deals with are still the subject of discussion and evoke doubt among most psychologists, who, whilst not rejecting the advisability of continued experimental study, are against scientifically groundless assertions and sensational statements by parapsychologists. Psychotronics is a synonym for P.

Passion, an intense, stable, and all-embracing sentiment dominating over other human motives to make the individual concentrate all his aspirations and efforts on the object of that P. P's may be caused by various factors, such as conscious ideological beliefs,

carnal desires, or pathological factors, e.g. in paranoia (see *Fanaticism*). An individual may either accept P. or condemn it as something undesirable and obsessive. The main feature of P. is its effectiveness, the fusion of volitional and emotional elements. Unity of the moral, rational factor and P. often motivates great feats and discoveries.

Pathological Doubts, an inadequate distressingly anxious emotional experiences characterised by moral, hypochondriac (exaggerated concern about one's health) and other contents that do not correspond to actual and possible trouble. For instance, even a slight unpleasant sensation in the stomach or a harmless epidermic disorder, makes such a subject to anxiously think of their possible malignancy. Such thoughts are also prompted by a tendency to indulge in self-analysis, and by other features of one's character (see *Psychopathies*). Unlike *raving* and *supervalent ideas*, P.D. are eliminated by a proper psychotherapeutic talk.

Pathopsychology, a branch of psychological science that studies morbid changes in *psyche*. When examining the patterns of change and deterioration of man's psyche, P. compares them with the regularities inherent in normal psychic activity. Research in P. is of major significance for medical practice: the resultant data are used to perform differential diagnoses; to subject people to forensic, labour, and military expert examination; to restore the patients' labour and social status; and to correct neurotic states, especially in child anomalous mental development. In elaborating the general theoretical problems of psychology, research in P. serves to confirm that psychic processes and personality traits form during one's lifetime; it also shows that the biological specifics of a given disease do not directly cause mental disorders, but play the role of conditions wherein the pathological process itself, i.e. the forming of an anomalous personality, develops. At the same time, it becomes clear that disturbances in psychic activity are not simply a retrogression, a reversion to a lower level of ontogenetic development, but the forming of a new quality. The basic technique in P. is *experiment*, whose results are compared with the life story of the affected individual.

Pedagogic Psychology, a branch of psychology that studies psychological aspects of teaching and upbringing. P.P. examines the psychological problems of purposeful forming of cognitive activity and socially meaningful individual qualities; the conditions that ensure an optimal teaching result; the possibilities of accounting for individual psychological peculiarities of students; the relationships between teacher and students, and also within the class; and psychological aspects of teaching itself (teacher's psychology). The origin of P.P. as an independent branch of psychology was caused by the spread of evolutionary ideas in the second half of the 19th century. The

initial successes of *experimental psychology* gave rise to the hope that accounting for data obtained in psychological laboratories and application of those data in the course of teaching would substantially optimise the teaching process. This idea was outlined in initial practice-oriented P.P. works. Yet, knowledge of the laws of *psychophysics*, of certain characteristics of *memorising* and *forgetting*, and of *reaction time* indices proved clearly insufficient. The recommendations of P.P. were rather vague and scholastic. Apart from scarce experimental facts, this was also caused by the limited nature of the theoretical views of P.P. adherents at that time. The use of the *biogenetic law* in psychology (along with other theories of spontaneous development), having underpinned a theoretical foundation to the theory and practice of "free education", actually closed the road to elaborating ways for purposeful moulding of human personality. The behaviourist (see *Behaviourism*) psychopedagogical concept (its contemporary version is Burrhus Skinner's theory) suggested an orientation towards rigid "*modification of behaviour*": without sufficient grounds, it assumed that it would be enough to organise a proper system of external stimulations to resolve all the issues of teaching and upbringing. In looking for a compromise between the purely biological and sociological approaches, the theory of "two factors", actually became the basic tenet underlying *paedology* with its faulty practice of "predetermining" child intellectual possibilities. The same theoretical foundation underlies the methodology of test examinations in the West today. Contemporary Soviet P.P. is based on the fundamental tenet that mental development is essentially assimilation of socio-historical practice, as objectified in material and spiritual culture; this is achieved through active human activity, whose means and ways are actualised in communication with other people. In this manner, P.P. research is drastically reoriented towards basing its strategy of research on active forming of mental processes and properties in the individual, rather than on recording the achieved level of mental development. Again, other P.P. aspects are also viewed in line with this general strategy. For instance, the ways and possibilities of purposeful forming of *actions*, *images* and *concepts* underlying knowledge and skills are studied by the theory of *stepwise forming of mental actions* (Pyotr Galperin, Nina Talyzina). This involves studying the means and ways of developmental training; analysing the interrelationship between organisation of teaching and the course of mental development; inquiring into the role of differentiated approach to the problem of the *ability to learn*; and investigating the means and ways for controlling and assessing training activity. A special place belongs to research aimed at purposeful forming of socially valuable personal traits. Being to some measure associated with the actual unity of teaching and upbringing, P.P. may be conventionally classified into the psychology of teaching (which studies regularities of assimilation of know-

ledge, *skills* and *capabilities*) and the psychology of education (which examines the regularities of active, purposeful moulding of human personality). In recent years, researchers have also distinguished teacher's psychology and studies of interrelations within collectives engaged in teaching and upbringing. With regard to spheres of P.P. application, one may distinguish the psychology of preschool education; the psychology of teaching children of school age with special reference to the junior, middle, and senior school ages with their essential specifics (see *Developmental Psychology*); the psychology of vocational training; and the psychology of higher education.

Perception, an integral *reflection* of objects, situations and events, one arising under the direct effect of physical irritants on the *receptor* surfaces of the *sense organs*. Together with sensation processes, P. ensures an immediate sensory orientation in the surrounding world. Being an essential stage of cognition, it is more or less always associated with *thinking*, *memory*, and *attention*, directed by *motivation*, and has a definite emotional tinge (see *Emotions*). One should distinguish P. adequately reflecting reality from *illusions*. The involvement of P. in practical *activities*, *communication* (1), and research processes has decisive significance for verifying and correcting the perceived image. The arisal of initial hypotheses on the nature of P. dates back to antiquity. Philosophers, physicists, physiologists, and men of art significantly contributed to the development of scientific concepts about P. In the late 19th century, the ideas about P. turned into major components within the contemporary system of psychological knowledge. The early theories of P. generally corresponded to the tenets of traditional *associationism*. A decisive step in overcoming such views in interpreting P. was made through the development by the Russian physiologist Ivan Sechenov of the reflex concept of psyche, on the one hand, and owing to the works of representatives of *Gestalt psychology*, on the other. The latter showed that the most important phenomena of P. (such as *constancy*) were conditioned by invariable relationships between the perceptual image components. Studies of the reflex structure of P. led to the creation of theoretical models of P., in which an important part is assigned to efferent (centrifugal) processes, including motor processes, that adjust the work of the perceptive system to the object's characteristics (Alexander Zaporozhets, Alexei N. Leontyev). P. is exemplified by the movements of a hand feeling a thing, the motions of eyes tracing a visible contour, or tense thorax muscles reproducing an audible sound. Contemporary studies of the early *ontogenesis* of P. in man confirm the existence of several forms of P., strictly caused by the specifics of constant stimuli combinations. Yet, developed processes of P. are controlled by the objectives facing the subject. The intentional (see *Intention*), purposefully directed nature of these processes makes it possible to regard them as *perceptual actions*

(Vladimir Zinchenko) that allow to distinguish the informative content of a situation, in accord with which the subject may compare the perceived objects with their former reflections and descriptions stored in his memory, and thus to recognise those objects, i.e. assign them to a certain semantic class (category). In most cases, the dynamics of the process of *identification* is adequately described by the "law of perception" (Nikolai Lange), according to which one would first distinguish only the general and diffuse idea about an object, an idea that would subsequently be replaced by a more specific and detailed P. Recognition that takes place on the basis of distinguishing generalised, occasionally socially fixed systems of features is achieved over a considerably shorter time (fractions of a second) than the processes of initial perceptual *learning*, some of which may take months and years (for example, the development of reading habits). The *categorisation* of objects, events and situations accomplished in identification owing to interaction of P. and memory is close to and sometimes identical with conceptual categorisation. The possibility for the subject to transform the image in order to reduce it to a form suitable for *decision-making* also draws P. closer to thinking processes. Such often unconscious transformations may help solve the tasks facing the subject. Thus, P. is not passive imitation of an instant effect, but a creative process of cognition. At present, P. is intensely studied by psychologists, physiologists, cyberneticists, and representatives of other disciplines. Relevant investigations into P. widely use *observation* and *experiment* and involve combined methods of empirical analysis and simulation. Evidence on the functions, development and structure of P. has both theoretical and applied significance, and is used in developing data representation systems, in technical design and applied art, in pedagogy, sports, etc.

Perception and Assessment of Man by Man, see *Perception, Interpersonal.*

Perception, Intergroup, social perception processes (see *Social Perception*), in which both the subject and object of perception come out as social groups or communities. In contrast to interpersonal perception (see *Perception, Interpersonal*), P.,I. is distiguished by (1) compiling of individuals into one whole that differs in quality from its component elements; (2) lengthy and considerably less flexible development (when developed, P.,I. resists external influences); and (3) schematisation and simplification of potential aspects in perceiving and assessing some other group. P.,I. is characterised by stereotype (see *Stereotype*, Social), highly fused cognitive and emotional components, a vividly affective tinge, and a sharply pronounced evaluative orientation. For these reasons, P.,I. is distinguished by bias (see *Bias*), the intergroup concepts themselves often don't stand the test with regard to truthfulness, accuracy and adequacy. These of P.,I. characteristics are manifested in a concentrated form in such effects as *intergroup discrimination*

and *ingroup favouritism*. Counter to a view widespread among Western psychologists (Sigmund Freud, Theodor Adorno, and others), according to whom these effects are essentially primordial, universal and inevitable elements of intergroup relations, Soviet psychologists have marked their secondary nature in relation to activity; among other things, they demonstrated both theoretically and experimentally that these effects are dependent on the *level of group development* and type of joint intergroup activity, and that they are not typical for a *collective*.

Perception, Interpersonal, comprehension and assessment of man by man. In contrast to the perception of inanimate objects, P.,I. is characterised by greater bias, which is manifested in the fusion of cognitive and emotional components; in a more vividly pronounced evaluative tinge; and in the greater direct dependence of the idea about another person on the motivational and semantic structure of the activity of the perceiving subject. A significant number of studies on P.,I. is devoted to the forming of first impressions about another person. They elucidate regularities inherent in the "completion" of the image of another person on the basis of available, often limited information, and in revealing the actual requirements of the perceiving subject; they also establish the action of mechanisms that lead to a distortion of P.,I. (Alexei Bodalev) (see *Recency Effect*, *Halo Effect*, etc.). An important feature of P.,I. is not so much the perception of human qualities, but rather the perception of a given human being in interrelations with other people (perception of preferences in a *group*, group structure, etc.). The study of the role of joint activities in P.,I. is a central theoretical problem in this field of socio-psychological knowledge, determining its experimental programme. The following are the most important of the P.,I. mechanisms studied: (1) *identification*, i.e. understanding and explanation of another person's behaviour by identifying oneself with him; (2) socio-psychological *reflexion*, i.e. understanding of another person by reflecting in his stead; (3) *empathy*, understanding and imaginatively experiencing another person's feelings; (4) *stereotyping*, i.e. the perception and assessment of another person by applying to him the characteristics of a given social group, etc. Attempts are being made to distinguish some more universal P.,I. mechanisms that help stabilise, categorise, (see *Categorisation*), select, and restrict information, this being a requisite for any perceptual (see *Perception*) process, including P.I. processes. The theory of cognitive dissonance (see *Cognitive Dissonance, Theory of*) and the *implicit theory of personality* laid claim to having discovered such universal mechanisms. Yet, neither provides satisfactory solutions (see *Attribution, Causal*).

Perceptual Actions, structural units of the process of *perception* in man, P.A. ensure conscious distinction of a given aspect of a sensed situation and the transformation of sensory infor-

mation so as to construct an image adequate to objective reality and to the tasks to be fulfilled. Soviet psychology was the first to advance the concept of P.A. (Alexei Zaporozhets, 1941). Later, some foreign psychologists developed similar views. The genetic correlation of P.A. with practical *actions* is manifested in their developed overt locomotor nature. The movements of a hand feeling an object, the movements of a throat reproducing an audible sound, or the movements of eyes tracing a visible contour continually compare the perceived image with the original object to verify and correct that image. Subsequent development of P.A. is accompanied by significant reduction of motor components, so that, outwardly, the process of perception assumes the form of a momentary act of "discernment". These changes are caused by the forming in a child of ramified systems of sensory standards and operational perception units that allow transforming perception from an *image* construction process into a relatively more elementary *identification* process. Sensory standards correspond, for instance, to the following socially-developed systems of sensory qualities: scale of musical sounds, system of phonemes of one's native tongue, or system of basic geometrical forms. In learning sensory standards, a child begins to use them as a sort of sensory measures. As a result, sensory-perceptual processes become more accurate and voluntary.

Perseverance, a cyclic recurrence or persistent reproduction, often counter to conscious intention, of some *action*, thought or *emotional experience*. They distinguish P. in the motor, emotional, sensory-perceptual (see *Eidetism*), and intellectual spheres. A tendency towards P. is often observed in the clinical picture of local brain lesions and in speech, motor and emotional disorders. P. is also possible in distracted attention or in states of acute overstrain (see *Tiredness*). P. is assumed to be essentially based on cyclic excitation of neuron structures caused by a delayed signal about action termination.

Persistence, a quality of the will aimed at steadfast achievement of one's *goal* in spite of difficulties and obstacles. P. is developed by fostering in a child, beginning from the preschool age, the ability to complete some feasible task, and also readiness to make efforts to subordinate his or her behaviour to the future result, sometimes counter to the motivations prevailing at the given moment. Meaningful goals and awareness of one's duty and *responsibility* for the given assignment play a positive role in fostering P.

Personal Construct, a classifying and evaluating standard created by the *subject* with whose aid objects, in their similarity and difference from one another, are understood. The P.C. notion was suggested by Harold Kelly. By its structural content, P.C. reflects the nature of the elements of the environment interpreted by a person (events, phenomena, people) as at once similar to and differing from one

another. P.C's. are distinguished according to the extent of the sphere of their use: P.C's that are applicable only in relation to a definite insignificant class of elements, and P.C's which reflect the most generalised evaluation of perceived objects. In accordance with their stability and invariability, distinction is made between basic and situational P.C's. The sum total of P.C's represents a system whose most important characteristic is its relative *cognitive complexity*, expressing the quantity of units comprising the system, their ramification and connection. Experimental data point to a dependence of the cognitive complexity of a person's P.C. system on his ability to give an in-depth description and analysis of perceived objects in their contradictory unity. The P.C. method may be used regardless of its association with *cognitive psychology*, in the framework of which it was proposed, as a comparatively simple method of studying the process of *categorisation*.

Personal Relationships, Theory of, a system of theoretical concepts, according to which the psychological core of the *personality* is an individual-integral system of this personality's subjectively assessed and consciously selected relations with reality, a system that represents an interiorised (see *Interiorisation*) experience of relationships with other people in a social environment. The said system of attitudes determines the nature of personal *emotional experiences*, the peculiarities of the *perception* of reality, and the nature of behavioural *reactions* to external influences. A positive or negative experience of relationships with people would also unambiguously form a corresponding system of intrinsic personal attitudes. The concept of personal relationships was initially developed by Vladimir Myasishchev and furthered by Alexei Bodalev's works devoted to problems of *interpersonal perception* (see *Perception, Interpersonal*). The basic tenets of the concept of personal relationships are specified in the pathogenetic theory of *neuroses* and in psychotherapeutic practice.

Personalisation, a process due to which the subject is individually represented in the life of other people and can come out in social life as a *personality* (Vadim Petrovsky). The need for P. is a deep-rooted and not always realised foundation of nonutilitarian forms of *communication* (1) (*altruism, affiliation*, desire for social recognition and self-assertion in a group, etc.). The chance to accomplish *deeds* and significant social changes, for which the individual is responsible to society, is, in effect, the determining factor in his ability to achieve P. This ability is also caused by the richness of the subject's individuality, by the sum-total of his socially meaningful distinctions from other people. It has been experimentally proven that a full-fledged and socially positive manifestation of that individual need and ability becomes evident in *collectives*, where the P. of each member conditions the P's of all. Meanwhile, in corporative groups (see *Corporation*) and a social *asso-*

ciations, *depersonalisation* of all is a condition for one *leader* to be able to achieve P. by his antisocial qualities. In presocialist social formations, the need for P. could only be fully realised by representatives of dominant classes, and was suppressed in the working people. Hence, throughout human history, the need for P. developed in various ideological, primarily religious forms, being essentially of class nature; as a result, dominant classes were provided with a socially wholesome life on this earth, while the oppressed were promised the life "in the other world", with alleged eternity of the free *soul*. The free and all-round development of man in socialist society allows the individual to achieve, through socially useful activity, positive P. in other people and by this virtue, be personally represented in social life.

Personalised Meaning, an individualised reflection of the meaningful attitude of *personality* to the objects for the sake of which his vital activity is carried out, cognised as "significance-for-me" of the subject's impersonal knowledge of the world, including *concepts*, *skills*, *actions* and deeds that are perpetrated by people, social *norms*, *roles*, *values* and ideals. The P.M. notion is historically linked with Lev Vygotsky's ideas about the dynamic meaning systems of the individual consciousness, which denote the unity of affective and intellectual processes. Introduction of the P.M. notion as a unit of consciousness (Alexei N. Leontyev) played an important role in overcoming the purely intellectualistic interpretation of consciousness as the sum of knowledge about the world, and also in solving problems of the correlation of individual and social consciousness in a person's life. The P.M. notion is used in different spheres of psychology which study man's relations to the world, depending on his place in society, his *motives*, *attitudes*, *emotions*, etc. A number of componential semantic systems are singled out: meaning-forming motives that induce a person's activity; a person's attitude to reality, which has acquired a subjective value (significance) for him and which is realised in activity; attitudes which express P.M.; deeds and actions of a person that are regulated by meaningful attitudes. P.M. possesses a number of peculiarities linked with the analysis of a personality as a whole. Central among these is P.M.'s dependence on a person's place in the system of social relations and on his social position. The determination of P.M. by the social position explains other peculiarities of the psychological nature of P.M.: the mediation of changes in P.M. by changing the activity which lies at its basis, the insufficiency of mere awareness of P.M. for changing it, and others. Since a change in a person's social position in the world entails a reassessment of his attitude towards reality, this may, in a number of cases, result in far-reaching restructuring of the sum total of P.M's, which occasionally is dramatically manifested in such phenomena as "loss of self" and loss of the sense of existence. The noted reconstructions should be distinguished from the subjective *emotional experiences* (sympa-

thies, antipathies, wishes, desires, etc.) which are easily accessible and change directly under the influence of speech. Such subjective experiences (along with emotions) fulfil the function of assessing P.M., facilitating the subject's awareness of his attitudes towards reality, their "sense" for him. When subjective experiences and P.M. do not coincide, the orientation of subjective experiences changes, and not P.M. A psychological analysis of the regularities of the formation and functioning of P.M. and—more broadly—of dynamic semantic systems is the central problem in studying the ways of a person's development and education as an *individuality* (Alexander Asmolov).

Personalism (in psychology), a trend which regards *personality* as a subject-matter and an object of primordial reality in opposition to its social environment. P. explains personality's development by its primordially inherent desire for *self-actualisation* and inner self-perfection, and regards all mental processes solely in this perspective. P.'s idealism and teleologism prevent it from giving a scientifically sound explanation of *personality*'s integrity and *activeness*.

Personality (in psychology), a systems quality which is acquired by an *individual* in object-oriented *activity* and *communication* (1), characterising his involvement in social relations. From the viewpoint of Marxist-Leninist philosophy, P. is formed in the process of social practice and, being active, appears as a whole in which cognition of the environment is realised in unity with emotional experience. P. is characterised by *activeness*—the subject's striving to expand the sphere of his activity, to act beyond the boundaries defined by the *situation* and role prescriptions; *personality orientation*—a stable dominant system of *motives*, of interests, convictions, etc.; in-depth semantic formations—dynamic systems of meanings, according to Lev Vygotsky (see *Personalised Meaning*)—which are formed in the *joint activities* of groups and collectives; the degree of awareness of one's attitudes to reality: *attitude* (Dmitri Uznadze, Alexander Prangishvili, Shota Nadirashvili), *disposition*, etc. A developed P. possesses a developed self-awareness, which does not exclude an uncounscious psychic regulation of some important aspects of his activity. Subjectively, for an individual, P. is his Self (Self-image, *Self concept*), a system of ideas about himself constructed by an individual in the processes of activity and communication, which ensures the unity and identity of his P. and reveals itself in *self-appraisal*, a feeling of self-respect, *level of aspirations*, etc. The Self concept represents how an individual sees himself at present and in future, what he would wish to be like, what he could be like if he wanted to, etc. Correlating the Self concept with the real circumstances of an individual's life permits P. to change his behaviour and accomplish goals of *self-education*. Appeal to the self-appraisal and self-esteem of P. is an important factor

in influencing P. in the process of *education*. As a subject of *interpersonal relations* P. is examined in three aspects, which form a unity: (1) P. as a relatively stable sum total of his intra-individual qualities: symptomatic complexes of psychological properties, which form the structure of P.'s *character*, peculiarities of *temperament*, *abilities* (Boris Teplov, Vladimir Nebylitsyn, Volf Merlin), etc., from the point of view of *individuality*; (2) P. as the aspect of an individual's inclusion in interpersonal ties, where mutual relations and interaction, which appear in a *group*, may be interpreted as bearers of the P. of their participants. Overcome in this way is the false alternative in the understanding of interpersonal relations as a manifestation of either a group, or P.—the personality attributes appear as those of a group, or vice versa; (3) P. as an "ideal representation" of an individual in the life of other people, even within their direct contact, as a result of transformations actively accomplished by a person in the cognitive and affective sphere of P. of other people. In his development an individual feels the socially determined need "to be a P.", i.e. to enter the life process of other people, continuing his existence in them, and displaying an ability to "be a P." that is realised in socially meaningful activity. P. is developed in activity, in the process of the *socialisation* of the individual and purposeful education. The task of communist education is the all-round, harmonious development of an individual's P. This development is complex in character (mental, labour, moral, aesthetic and physical), the school, family and society playing the leading role. Important in this process is education by labour, primarily by joining in a work *collective*, where the necessary conditions are created for the formation of socially valuable P. qualities in productive labour (Anton Makarenko, Vassili Sukhomlinsky). The regularities and the age periodisation of the psychological development of P. (see *Age*) is usually described through the study of general regularities and age periodisation of an individual's psychological development. However, the unity of psychic development and the development of P. does not imply their identity. In this connection an attempt is made to build a hypothetical model of P.'s development and on its basis age periodisation (Artur Petrovsky), in accordance with which age development is determined by the type of relations formed by an individual with his most influential *reference group* in that period. In preschool and early school age these are groups directed by a teacher; in adolescence—primarily groups of peers or of older children; in youth—*collectives* as groups with a high level of development or, in individual cases, with serious defects in upbringing, corporative groups. Western psychology absolutises the age periods of development of P., building on the basis of each of them special psychological theories of P.: psychoanalytical (see *Psychoanalysis*)—on the basis of absolutising the development of P. in early childhood; neobehavioural (see *Neobeha-*

viourism) theories of social *learning* and the theory of *roles*—development of P. before school and in early school age; "*humanistic psychology*" with its accent on "self-realisation",—on the basis of abstracting adolescent self-assertion. Thus the P. of an individual who has not yet been integrated in social life is incorrectly taken as a model of a socially mature individual. The majority of Western theories of P. are indeterminate and teleological in character, ignoring the determination of P. by real practical activity. That is why, despite some achievements in the field of technique (specifically, in the sphere of *psychotherapy*), crisis phenomena are characteristic of the P. psychology in capitalist countries, which is admitted by Western scientists themselves. The works of Soviet and foreign (Henri Wallon, Lucien Sève, and others) Marxist psychologists contain criticism of the idealistic and mechanistic teachings on P.

Personality Inventories, a set of methods for studying and assessing the traits and manifestations of the *personality*. Each of the methods represents a standardised *questionnaire*, a set of proposals whose content the subject (*informant*) may either agree or disagree with. The questions in the questionnaire are formulated so that, in responding to them, the subject would inform the experimenter of his state of health and typical forms of his behaviour in various situations, and would assess his own personality from various viewpoints, inform about the peculiarities of his relationships with other people, etc. P.I. allow to obtain information characterising the subject's personality within a wide range of aspects: from peculiarities of his physical and mental state to his moral, and social views. P.I. are developed on the basis of one or several *attitude scales*. The questions are grouped so that the replies would allow to assess some individual trait or state. These grouped questions, which are called *scales*, are distinguished by the name of the personality trait studied (scales of anxiety, leadership, aggressiveness, etc.). The data obtained by questionnaire are directly transformed through special statistical procedures into standardised score points, normally represented in diagrammatic form. Today a great variety of P.I. have been developed depending on respective personality theories. Some of them are designed to simultaneously assess many personality aspects (for instance, MMPI—the Minnesota Multiphasic Personality Inventory); however, most of them are aimed at studying specific personality traits (Hans Eysenck's method). In many questionnaires personal features are determined basing on the use of various *factor analysis* techniques (Joy Guilford's test, James Cattel's 16-factor test, etc.). The main shortcoming of P.I. is that the subjects, while more or less understanding the face value of their replies, may sometimes respond depending on the *situation* or experimenter's demand, i.e. voluntarily or involuntarily distort the information they give about themselves.

Personality Orientation, a totality of stable *motives* directing individual *activity* and relatively independent of actual situations. P.O. is characterised by individual *interests, propensities beliefs,* and ideals, in which a person's *world outlook* manifests itself (see *Personality*).

Personality Tests, see *Methods of Personality Study*

Personality Traits, stable features of the *behaviour* of an individual recurring in different situations. P.T. are always marked by varying degree of prominence in different people, across various situations (P.T. of an individual are manifested in any situation), and by the potential capacity to be measured (P.T. may be measured with specially developed questionnaires and tests). In *experimental psychology,* P.T. such as *extroversion—introversion, worry, rigidity,* and impulsivity have been examined in greater detail than others. In contemporary studies, the accepted viewpoint is that description of P.T. is insufficient to understand and predict specific individual behaviour, since they provide knowledge only about the general aspects of personal behaviour (see *Personality, Methods of Personality Study*).

Personification, the act of ascribing human properties to animals, plants, abstract concepts, inanimate objects, and natural phenomena.

Persuasibility, the degree of susceptibility to *suggestion* as determined by subjective readiness to become subject to and succumb to some suggestion. P. is a personal characteristic dependent on situational and personal factors. The following are among the personal traits conducive to increased P.: diffidence, low *self-appraisal,* inferiority complex (see *Complex*), submissiveness, timidity, shyness, trustfulness, *worry, extroversion,* increased *emotionality,* impressionability, weak logical reasoning, and slow mental activity. The following situational factors affecting higher individual P. are distinguished: subject's psychophysical state (in quiescence and *relaxation,* P. rises, as it also does with strong emotional exitement, *tiredness,* and *stress*; maximal P. is observed in *hypnosis*); low level of information; insufficient competence in the issue discussed or in the activity concerned; a low degree of importance for the subject in question; and shortage of time for *decision-making.* Under "group pressure" (see *Conformity*), P. would depend on the *level of group development.* Experiments have shown that subjects characterised by P. tests as suggestible prove capable of achieving *collectivist self-determination* when placed in a *collective,* i.e. of resisting P. because their *interpersonal relations* are mediated by the goals and values of *joint activities.* Contemporary psychology regards P. as a heterogeneous phenomenon which manifests itself in different ways in different life spheres of the individual, depending on the content and type of activity. In certain situations, every person may prove suggestible to some degree. Two types of

P. have been revealed by means of *factor analysis*. Primary P. underlies perceptibility to *self-suggestion* and hypnosis. Secondary P. is linked to dependence relations, to their *motivation*, and to the subject's low self-appraisal. P. is a normal feature of human mentality; however, excessive P. may disorganise behaviour and is considered a negative quality. Criticality is the opposite of P.

Phatic Communication, a contact without content, when communication is maintained exclusively for the very process of it.

Phenomenalistic Psychology, see "*Humanistic Psychology*".

Phenomenon of Invested Effort, see *Invested Effort*.

Phenotype, any observable morphological, physical, or behavioural feature of an organism. P. is the product of *genotype*-environment interaction. Yet at different organisational levels (cell, organ, or organism) the P.-genotype relationship would differ. Normally, the term P. is not used to designate the totality of human social characteristics.

Phlegmatic Person, an individual with one of the four basic types of *temperament* characterised by a low level of psychological *activeness*, sluggishness, and inexpressive mimicry. A P.P. has difficulty in switching over from one form of *activity* to another, and also in adapting to new situations. P.P's are usually even-tempered, and their sentiments and *moods* are normally stable. In unfavourable conditions, a P.P. may develop inertia, meagre emotions, and a tendency to perform monotonous, habitual actions. The Russian physiologist Ivan Pavlov believed that P.P's have a strong, balanced, and inert type of nervous system.

Phobias, obsessive, inadequate emotional experiences of specific fears felt by the subject in a definite (phobic) situation and accompanied by vegetative disfunctions (tachycardia, abundant sweating, etc.). P., are observed in *neuroses*, psychoses and organic *brain* diseases. In neurotic P., patients are generally aware that their fears are unfounded, and take them for morbid and subjectively tormenting experiences they are unable to control. Psychologists distinguish nosophobia (fear of contaging some disease, say cancer, heart disease, and so on), sociophobia (fear or appearing in public, fear of blushing, etc.), fear of space (claustrophobia—fear of closed premises, agrophobia—fear of open space), and so on. If the patient fails to show distinctly critical understanding that his fears are unfounded and unreasonable, then all the above-mentioned states would more often not be P. but pathological doubts (misgivings) or *raving*. P. involve specific behavioural manifestations designed to avoid their object, or to reduce fear by performing obsessive, ritualised actions. Neurotic P., in which the neurotic would unconsciously "hide" from some insoluble conflict, usually arise in people

with imaginal thinking and, at the same time, somewhat inert and vegetatively unstable. In most cases, they are overcome after expert psychotherapeutic treatment.

Phrenology, a doctrine advanced by Franz Gall that human or animal mental features are associated with the shape of the skull. Its underlying idea is this: the brain cortex consists of a number of centres, each localising a given human ability (talent). When that ability is highly developed, the corresponding brain centre is developed, too, and this allegedly affects the skull configuration, allowing by means of special measurements to make a phrenological chart which shows "bumps of talents" for music, poetry or painting; "bumps" of ambition, stinginess, or bravery, and so on. In the 19th century, P. was highly popular as a method of *psychodiagnosis*. However, numerous autopsies showed that the skull does not at all replicate the cortex shape, and hence to determine human mental and moral peculiarities by the skull bumps and cavities would be unscientific. P. has for many years discredited the rational element in Gall's views, namely, the principle of localisation of functions in the cerebral cortex, the principle that was later confirmed by the discovery in 1870 by Gustav Fritsch and Eduard Hitzig of psychomotor centres in various sections of the brain (see *Localisation of Higher Mental Functions*).

Phylogenesis, a sequence of events in the evolution of groups of organisms. In psychology, P. is understood as the process of emergence and historical development (evolution) of animal *psyche* and *behaviour*, and also forms of *consciousness* in the course of human history. P. is studied by *animal psychology*, *ethnopsychology*, and historical psychology (see *Sociogenesis*), and also by anthropology, ethnography, history, and other social sciences. In Soviet psychology, dialectical and historical materialism is the methodological foundation of the study of the evolution of various forms of consciousness. Basically, P. deals with revealing the main evolutionary stages in animal psyche (in connection with specific habitats, nervous system structures, etc.; one of the best known schemes is still that of Karl Bühler: *instinct—skill—intellect*); identifying the conditions of stage-to-stage transition and the general evolution factors; distinguishing the main evolutionary stages of various forms of consciousness (in connection with specific activity, social relations, culture, language, etc.); and establishing the correlations of the main stages of P. (e.g. of man's psyche) and *ontogenesis* (see *Mental Development*).

Physiognomy, a precept alleging a unilinear correlation between an individual's looks and his character and resultant possibility to establish his psychological characteristics on the basis of his appearance. P. originated in ancient times on the basis of the idea that human mental (moral) and bodily faculties are predetermined by nature. For ages, P. served as a premise for

numerous character typologies. However, both these typologies and attempts to revive the ideas of P. in the 20th century lacked scientific ground (see *Characterology*).

Physiology of Activeness, a concept that interprets the behaviour of an organism as an active attitude to the environment determined by the model of the future (result) sought by the organism. The ideas of P. of A. appeared (in opposition to mechanistic understanding of the organism as a purely reactive system) in the works of Ivan Sechenov, Charles Sherrington, Alexei Ukhtomsky, and others. Nikolai Bernstein developed P. of A. as a special trend of research. According to him, the model of the required future is simulated by the *brain* on the basis of information on the current situation and past experience; however, that model is not rigid, since the organism continually faces the need for probability forecast and choice of most effective ways of achieving its goal by solving its locomotion task. Having developed its behaviour programme, the organism would fight for it by overcoming the environment, whose features would be taken into consideration by introducing *sensory* corrections into that programme. This makes it possible to actively reconstruct behaviour by the feedback principle, thanks to which it has the nature of a reflex circle, rather than a reflex arc. Continuous organism-environment cyclic interaction is achieved at various levels of movement construction. The effecting apparatus is characterised by numerous degrees of freedom, whose excess is overcome by coordination of movements and by transformation of the effector organ into a controlled system. The ideas of P. of A. influenced the development of several sciences, including psychology.

Pictogram, a graphic method used in psychology for studying mediated *memorising*. P. was suggested in the 1930s by the Soviet psychologist Alexander Luria, and has come to be widely used in psychiatry and *medical psychology* as a diagnostic technique. The general view of P. comprises a totality of graphic *images* which the subject invents to effectively memorise and subsequently *reproduce* words and expressions. As a diagnostic technique, P. belongs to projective tests (see *Projective Tests*) since it often reflects the subject's hidden *motives*, personal problems and fears. Presumably, the selection and construction of graphic images makes it possible to reveal not only *mnemonic* disorders, but also disturbed conceptual *thinking* (see *Thinking, Verbal-Logical*).

Pilot Study, a tentative investigation conducted prior to the main research and constituting the latter's simplified form. In *social psychology*, P.S. (working term: "probing") is applied to establish the scope and number of *questionnaire* items to be selected and specified, the interview time, etc. In testology, P.S. (working term: "pretest") serves to reveal certain main test standards. P.S. is highly important in planning experimental psychological

studies, making it possible to establish the directions, organisation principles, and methods of the main research, and to specify most important relevant hypotheses. In Soviet psychology, the term "exploring experiment" is used more commonly.

Placebo Effect, changes in patient's physiological or psychological state caused by administering a placebo, a harmless preparation prescribed as a drug. P. E. shows the psychotherapeutic impact of the very fact that a medicine has been administered; it serves to establish the extent of *suggestion* in the remedial effect of a new preparation. In this case, a group of subjects are told they would be given a new drug, and half of them are subsequently administered a placebo. By comparing the results for the two subgroups, one can judge of the actual efficacy of the drug. P.E. is also used in *psychotherapy* and in certain experimental psychological studies.

Play (Game), a form of *activity* in conventional situations, directed towards the recreation and assimilation of social experience fixed in socially established methods of carrying out purposeful actions in science and culture. As a specific, historically rooted kind of social practice, P. reproduces the norms of human life and activities whose observance is ensured by the cognition and assimilation of object and social reality, and the intellectual, emotional and moral development of personality. P. is the prevalent type of activity among preschool children. Some forms of animal behaviour are also called P. P. is studied in psychology, ethnography and history of culture, in the theory of management and pedagogics (see *Game, Business*) and other sciences. The first attempt systematically to study P. was made at the end of the 19th century by the German scientist Karl Groos, who believed that P. is a preliminary exercise for instincts as applied to the future conditions of the struggle for survival (the "theory of pre-exercises"). German psychologist Karl Bühler defined P. as an activity pursued for the sake of "functional satisfaction". The Freudians interpret P. as an expression of inner instincts or drives. All these interpretations suffer from a biologically-determined approach. A materialist interpretation of P. was formulated by Georgi Plekhanov, who pointed out that its origins stemmed from labour. In Soviet psychology, the theory of P. which developed out of the recognition of its social nature was elaborated by Yefim Arkin and Lev Vygotsky. Tying P. in with *orientating activity*, Daniil Elkonin defines P. as an activity which forms and improves control over behaviour. Distinctive features of ongoing P. are rapidly changing situations in which the object of a particular action finds himself, and equally rapid adaptation to a new situation. Children's P. structure includes the following: the roles assumed by the players; P. actions as a means of realising these roles; the application of objects, i.e. the replacement of real objects by artificial, play objects; and real relations between the players. *Role* is the unit

of P. which serves as the pivot uniting all its aspects. A particular field of activity reproduced in P. is its plot; and that which is reproduced by children as the main aspect of adults' activities and relations at work and in social life is the content. Through P. the child's voluntary behaviour, his *socialisation*, takes shape. A distinctive feature of P. is its dual nature, also characteristic of dramatic art, whose elements are sustained in any collective P. On the one hand, the player performs real activities which require actions connected with tackling quite specific, frequently unusual, problems; on the other, some aspects of these activities are of a conventional nature, making it possible to digress from the real situation and responsibilities and numerous attendant circumstances it carries. This dual nature determines the developing effect of P.

Polar Profiles, Method of, a way of describing objects (*concepts*, social *attitudes*, social *stereotypes*, etc.) by selecting bipolar scales for contrasting adjectives, nouns or developed utterances (sentences), e.g. hard—soft, warm—cold, etc. By generalising the subject's replies on the nature of a given object (softer or harder, etc.) over the entire scale, the investigator would infer his psychological attitude towards that object. Unlike the *method of semantic differential*, P.P.M. does not require *factor analysis* and grouping of scales into larger categories.

Political Psychology, a branch of psychology concerned with the psychological phenomena (moods, opinions, feelings, value orientations, etc.) of political life that form and reveal themselves in the political consciousness of classes, social groups, governments, and individuals and are realised in their specific political actions. Bourgeois P.P., in fulfilling a reactionary ideological function, in addition to analysing psychological aspects of current political issues (both domestic and international), claims that it develops social scientific theories designed as alternatives to Marxism, and also to orthodox and novel bourgeois sociopolitical conceptions that have discredited themselves. In Marxist psychology, many problems constituting the subject matter of P.P., such as political education, social consciousness, the psychology of ideological influence and mass political activity, are solved within the framework of *social*, *pedagogical* and *developmental psychology*, sociology, the theory of scientific communism, and philosophy. The works of the founders of Marxism-Leninism include the methodological principles of analysing the psychological aspects of political problems, and contain models of such analysis still having timely political relevance.

Population Method, see *Methods of Psychogenetics*.

Pregnance, see *Gestalt*.

Prejudice, see *Bias*.

Prestige, a degree of recognition by society of a person's merits; the result

of correlation of socially significant personal characteristics with the *value* scale existing in a given group. In capitalist society, the usual indicators of P. are a big bank account, residence in an exclusive "aristocratic" district, a luxury car, mention in "high-society" news, etc. In socialist society, P. is based on socially valued characteristics, e.g. high moral standards, active participation and high achievements in socially beneficial activity.

Primacy Effect, more probable recollection of several initial elements in a series than of those situated in the middle of that series (see *Sequence Effect*). P.E. is studied within the framework of investigations of *memory*, *learning* processes, and *social perception*. Numerous relevant studies have established that P.E. depends on the scope of the material to be remembered and on its presentation rate: the longer the presented series and the higher the presentation rate, the fewer initial elements are remembered. P.E. also depends on how repetition is organised, and on the presence of synonyms and homonyms, since these lead to selectively reduced P.E. The subject's activity immediately after presentation would virtually have no influence on P.E., which is caused by the fact that the initial elements in the series have enough time to be stored in long-term memory (see *Memory, Long-Term*), due to a greater number of repetitions, and their subsequent extraction therefrom depends on how effectively they are sought in the storage. In *social psychology*, P.E. is studied in interpersonal perception to determine how important the sequence of information input is to assess a person (see *Recency Effect*; *Stereotype, Social*).

Probability Forecasting, anticipation of the future based on the probability structure of past experience and on information obtained from the current *situation*. This involves hypotheses about possible events, each of which is ascribed a certain probability. In line with the forecast, the subject in question would preadjust to or prepare for relevant actions. In this respect, speed and precision of motion (particularly important for operators, athletes, etc.), and speech have been studied most exhaustively. P.F. was shown to play a role in the arisal of emotional reactions. Natural disturbances in P.F. have been described in pathology, e.g. lesion of the frontal lobes of the brain, schizophrenia, etc. P.F. is of special interest in interaction with an active partner, i.e. another *personality*, whose *goals* do not coincide with those of the subject in question. In this case, P.F. should take into consideration the partner's most probable *actions*, which, in turn, would rely on his P.F. P.F. thus proves to be an element of *reflexion* and *interpersonal relations* (Iosif Feigenberg).

Problem, awareness of an individual of the impossibility to overcome difficulties and contradictions arising in a given situation by means of available knowledge and experience. Like a *task*, P. originates in a *problem situation*. However, being a psychological cate-

gory, the latter conditions solely the initial stage of the subject's mental interaction with the object, a stage involving the generation of a cognitive *motive* and statement of tentative hypotheses concerning ways of solving the problem situation. Verification of these hypotheses causes the problem situation to become transformed either into a P. or a task. The latter would arise when the object under study reveals an unknown thing that must be found by transforming certain conditions. A task comes out as a symbolic model of a problem situation, i.e. as something objectified that may be transmitted to another person and become an essential part of training. Transformation of a problem situation into a task or a series of tasks is an act of productive *thinking*. Unlike a task, P. is recognised as a type of contradictory situation involving opposite positions in explaining the same objects or phenomena, and their relationships. This is not a formal logical, but a dialectical contradiction within the same thing, phenomenon, or process, one that "splits" them into opposites, and requires the construction of a theory for resolving that contradiction. The resolution of dialectical contradictions constituting the pivot of P. is the source of scientific theories. Thus, a problem situation genetically precedes tasks and P's. Whereas the central element in a situation is the subject, in a task and P. it is the symbolic object and contradiction, respectively. To solve a P., it must be transformed into a creative cognitive task allowing to check the models of given conscious or intuitive decisions. The concept of educational P. is used in *problem training*. An educational P. has the logical form of a cognitive task, which has some contradiction in its conditions, showing in excess, insufficient, alternative or partially incorrect data and culminating in a question which that contradiction objectivises. Detection of a contradiction in an educational P. (problem task) causes the trainee to experience a state of intellectual difficulty and, hence, a problem situation.

Problem Situation, (1) a *situation*, to master which an *individual* or *collective* must find and use new means and ways of *activity*; (2) a psychological model of conditions in which *thinking* generates on the basis of a situationally arising cognitive *need*; a form whereby an individual is related to the object of cognition. P.S. is characterised by interaction of the individual with his surroundings, and also by the psychological state of the cognising *personality* involved in the objective and controversial environment. Awareness of some contradiction in the course of activity, e.g. of the impossibility to fulfill a theoretical or practical task by means of previously mastered knowledge, generates a need for new knowledge that would allow to solve that contradiction. Objectification of something unknown in P.S. is achieved in the form of a question posed to oneself to establish the initial link in the intellectual interaction of the individual with a given object. In the course of that interaction, the

individual would look for an answer to the question regarding new knowledge about the object, the way of action, and about the productive development of the individual himself. Inasmuch as the individual's "surrounding" includes not only objects, but also a social environment, the initial question would be posed not to oneself, but to another person whose *activeness* mediates the individual's development. P.S. is a central concept in *problem training*.

Problem Training, instructor-organised active interaction of the subject with problem-represented contents of training, in the course of which the individual becomes acquainted with objective contradictions of scientific knowledge, the ways for resolving those contradictions, and learns to think and creatively assimilate knowledge. In *joint activities* with the instructor, the student does not merely process information, but, in assimilating new knowledge, emotionally experiences that process as a subjective discovery, hitherto unfamiliar to him, by perceiving and *comprehension* of scientific facts, principles, methods or conditions of *action*, as a personal *value* that determines the development of cognitive *motivation* or *interest* for the subject. By creating a *problem situation* in P.T., the instructor simulates conditions for research activity and development of creative thinking in the student. The components of that situation would be the object and subject of cognition and their mental interaction, whose specifics would depend on the subject-matter and the didactic techniques for organising cognitive activity. Problem and informational questions would serve as means for controlling student intellectual activity in P.T. Problem and informational questions would indicate the substance of the training problem and the area wherein the student would look for knowledge previously unfamiliar to him. In P.T., the principle of problem putting is actualised both in the subject-matter and in the process wherein the latter is developed in the training process. The first is achieved by developing a system of problems which reflect the basic contents of a given discipline, and the second by constructing P.T. in the form of a dialogue, in which both the instructor and the trainee would show intellectual activity, initiative and interest in each other's judgements and discuss alternative decisions. In such P.T., a system of training problems and problem situations conditioned thereby would be used to simulate research activity, social interaction and dialogue of the participants. This, in turn, would create conditions for productive thinking and development of the student's personality and social relationships (Alexei Matyushkin, et al.).

Professional Fitness, a set and structure the psychological and psychophysiological features of an individual needed to achieve socially acceptable efficacy in professional work. P.F. is formed in work and in the presence of positive vocational *motivation*, whose origin and consolidation is prompted by

awareness of its social value; the possibility to actualise one's potentials, achieve good results, and enjoy public recognition of those results; and also by a system of material and moral incentives. In causing gratification, successful work and professional perfection arouse creative *activeness* to hasten the forming of P.F. and, at the same time, leave an imprint in the worker's personality and affect his attitude towards other people and the surrounding world. The forming of P.F. may have an infinite number of options depending on the variety of individual features characteristic of people wanting to join a given profession. As their professional skills improve, the number of individual P.F. versions would decrease, and certain objectively essential components would start to prevail in the P.F. structure, which makes it possible to distinguish a limited number of P.F. types. Hence, judging by mature specialists' P.F., it would be incorrect to infer that it has remained the same as at the outset of their activity. It would be even more inadmissible to regard these features as criteria for selecting people for subsequent training in a given profession. The requirements of P.F. gradually change with time, and these changes are essentially caused by some new content in professional activity, chiefly connected with the latter's organisational and technological reconstruction in the setting of increasingly rapid scientific and technological progress. This is also accompanied by changes in the level of socially acceptable efficiency, since the latter reflects a continually growing demand to raise labour productivity.

Professional Selection, see *Psychological Selection*.

Programme-Role Theory of a Scientific Collective, an approach to the formation and development of the socio-psychological aspect of a scientific collective (see *Collective, Scientific*), and of the structure and mechanisms of research group activities in science. It was developed by Soviet psychologist Mikhail Yaroshevsky. The key notions of the P.-R.T. of S.C. are a *research programme of a scientific collective* and a scientific role. P.-R.T. of S.C. is based on the following methodological propositions: the demands made by society on science underlie a programme of a scientific collective, its values and norms, which in turn determine the orientations, expectations, social attitudes and behaviour of its individual members. The programme accepted in a scientific collective plays a special collective-forming role in its establishment and development; this programme ensures group cohesiveness, regulation of interpersonal interactions and *interpersonal relations* therein, collective motivation of *creative work*, *communication* (1), and distribution of functions (*roles*) among individual group members. Interpersonal relations within research collectives essentially represent socio-historical relationships. The acts wherein these relationships are actualised, e.g. *communication* (2), *reflexion*, etc. are part of the process of scientific activity.

Progressive (Inner) Inhibition, see *Retroactive Inhibition*.

Projection, psychological defence (see Defence, Psychological) mechanism whereby one individual unconsciously ascribes to another person motivations, features and properties inherent in his own personality.

Projective Tests, a set of techniques for integral personality studies based on psychological interpretation of *projection* results. In this case, projection implies not only a means of *psychological defence*, (see *Defence, Psychological*) but also the fact that perception processes are conditioned by mnemonic traces of all past perceptions. The subject would transform perceptually the situation he is in in accord with his *individuality* (e.g. he would interpret a drawing in line with his personality traits). Psychologists distinguish associative P.T., e.g. unfinished sentences or stories, and expressive P.T. (*psychodrama*; optional drawing, game, etc.). Herman Rorschach devised a most widespread associative P.T. He selected ten *stimuli*—ink spots to which the subject *reactions* were most characteristic. The spots were offered to him one after another, and he had to say what they look like and what they remind him of. Many psychologists regard P.T. as the most valuable personality tests (*Methods of Personality Study*), for they "portray" all the subject's individuality and allow to examine his emotional features, neurotic responses, and so on. P.T. are very good because they make it easier to show the elements in the subject's inner world which he is often unable to express in a straight way, and also because they allow the experimenter to orientate himself in the complex properties of another personality that are hard to assess. P.T. require extensive training in psychological theory and practice in applying the technique.

Propensity, selective disposition of an individual towards a given activity, inducing him to engage in that activity. P. is based on a deep-rooted and stable *need* of the individual for a given activity, and on his desire to improve relevant skills and habits. The arisal of P. is normally a premise for development of corresponding *abilities*, albeit cases when P. and abilities do not coincide may also occur.

Properties of the Nervous System, stable characteristics of the *nervous system* which, other conditions being equal, affect man's individual mental features. P. of N.S. constitute the physiological foundation of the formal-dynamic aspect of behaviour and form the basis of behavioural patterns. Most commonly, P. of N.S. are seen in the specifics of man's *temperament*. P. of N.S. were discovered by the Russian physiologist Ivan Pavlov and formed the groundwork of the typology of higher nervous activity developed in experiments with animals. According to Pavlov's concept, the following three P. of N.S. are distinguished: strength, mobility, and balance. With reference to man the P. of N.S. concept

was most consistently developed by the school of the Soviet psychologist Boris Teplov. New P. of N.S. were discovered, namely, lability and dynamism. Also discovered was the phenomenon of the partiality of P. of N.S., which served as a basis for distinguishing specific and general P. of N.S. The former characterise the functioning of individual *brain analysers* and brain areas, and the latter are understood in two ways: as dimensions of the functioning of the anterior, regulatory brain areas, and as the neurophysiological features characteristic of the whole brain.

Psi (Ψ), the 23rd letter of the Greek alphabet, commonly used to symbolise psychological science.

Psyche, a systems property of highly organised matter, which involves active reflection by the *subject* of the objective world, construction by him of an unalienable picture of that world, and self-regulation of his own behaviour and activity on this basis. Events of the past, present, and possible future are represented and structured in P. At the individual level, events of the past come out in experience and memory; those of the present—in a totality of images, *emotional experiences*, and mental acts; and those of the possible future—in motivations, intentions, and *goals*, as well as in fancies, visions, *dreams*, etc. In man, P. is both of conscious and unconscious nature; however, unconscious P. also differs in quality from animal P. Active and anticipatory *reflection* by the sense organs and the brain of external objects in the form of P. makes it possible to perform *actions* adequate to the properties of the said objects and thereby ensure the survival of the organism which experiences a need in those objects, its search and *situationally independent activeness*. Hence, the determining features of P. are: reflection producing an image of the objective environment in which living creatures act; their orientation in that environment; and the gratification of their needs in contacts with that environment. In turn, these contacts, by the feedback principle, control accuracy of reflection. In man, social practice is the control level. Thanks to feedback, the individual compares the action result with the image which arises before the result, forestalling it as a peculiar model of reality. In this way, P. emerges as a single cyclic system that has a history and is reflexive in type. Reflectority signifies the primacy of objective conditions in an organism's life and the secondary nature of their reproduction in P.; the natural transition of the system's perceiving components into executive ones; and the expediency of locomotor effects and their "return" impact on the image. This conception of the reflectory nature of P. was initially developed by the Russian physiologist Ivan Sechenov in opposition to both the idealistic view, which had for ages regarded P. as a special incorporeal entity (see *Soul*), whose propelling force is concealed in itself, and to the mechanist-material view, which denied P.'s *activeness* and reduced

it to nervous processes. P.'s activeness is also manifested in reflection of reality, since that reflection assumes the transformation of physicochemical *irritants* that act on nervous systems into object images both in the sphere of motivations, which impart energy and impetus to behaviour, and in fulfilling a behavioural programme, which involves search and selection of options. Arising at a definite level of biological evolution, P. itself comes out as one of its factors to ensure the increasingly complex adaptability of organisms to their habitats. With the origin and development of man, P. assumed a qualitatively new structure caused by social and historical regularities. *Consciousness* emerged as the leading level in regulating man's activity, and this resulted in the forming of *personality*, which serves as the source of supreme manifestations of P.'s activeness. Dialectico-materialist philosophy, primarily Lenin's theory of reflection, is the methodological foundation of P. studies in Soviet psychology.

Psychedelics, substances that cause *psychedelic states*. P. include lysergic acid diethylamide (LSD-25), dimethyltriptamine (DRT), bufotenine, mescaline, psilocytine, and similar psychoactive hemp derivatives (cannaboids) and certain synthetic preparations (sernyl, ditrane, etc.). P. are presumed to be antagonists of neuromediators, conductors of excitation in the *nervous system*. P. effects can change personality and profoundly restructure the hierarchy of its *motives* and *values*. Uncontrolled administration of P. outside the clinic may lead to severe accidents.

Psychedelic States, changes in *consciousness* caused by the administration of *psychedelics*. Studies of P.S. began in the 1920s. In addition to physiological symptoms (lacrymation, nausea, rigor, etc.), P.S. are also characterised by severe mental changes, such as *hallucinations* in the form of light flashes, geometric figures, and transformations of surrounding objects; hypersensitivity to sounds, acoustic *illusions;* changes in sensations of one's own body, and distorted perceptions of time and space ["stoppage" or "acceleration" of time (see *Psychological Time*), repeated emotional experience of past episodes, inadequate estimate of dimensions of objects, loss of perspective, or a feeling of "dissolution" in space]; emotional changes (elevated mood, unmotivated laughter or appeasement being typical of healthy persons, and negative emotions of affected individuals); disturbed thinking and memory (accelerated or retarded mental processes, illusory interpretation of events); and psychomotor disorders. P.S. played an important role in religious rites of ancient cultures. Systematically recurring P.S. usually lead to destructive personality changes and dangerous social consequences.

The Psychic As a Process, a concept developed by Sergei Rubinstein and his followers (Andrei Brushlinsky, and others) in further elaborating Ivan Sechenov's theory of the reflectory nature of the psychic, and one that

reveals the principal mode in which the psychic exists. In effect, it exists primarily as a living, extremely flexible and continuous process, which is never initially fully preset and, hence, one that forms and develops to engender various products or results (*psychic states* and *images, concepts, sentiments*, solution or nonsolution of some task, etc.). P.A.P. is not reduced to a sequence of stages in time, but forms in the course of continually changing interaction (*activity, communication* (1) etc.) of an individual with the environment and, consequently, continuously changes and develops, reflecting ever more fully this dynamic nature of environment and taking part in regulating all actions, deeds, etc. For instance, *thinking* involves *analysis, synthesis*, and generalisation of the conditions and requirements of the problem to be solved and the methods for solving it. This continuous process results in the forming of discrete mental *operations* (logical, mathematical, linguistic, etc.), which thought generates, but is not reduced to. As a process, thinking is inseparably associated with personality's mental activity (involving *motivation, abilities*, etc.). At each given stage of his psychological development, man acts intellectually, proceeding from already established personal *motives* and abilities; the further forming of motives and abilities takes place at subsequent stages of the mental process. In this case, thinking, *perception*, etc. would chiefly form unconsciously (see *The Unconscious*). However, at the personal level of thinking, perception, etc. man would to a large extent consciously regulate these processes. The inseparable interrelationship of the conscious and the unconscious ensures P.A.P. continuity, which manifests itself in the close interconnection of the cognitive and affective components of any psychological act. The concept of P.A.P. reveals the unity of consciousness and activity, for human psyche manifests itself and forms in activity.

Psychic State, a concept used to conventionally distinguish a relatively static moment in an *individual*'s psyche in contrast to the term "psychic process" (see *The Psychic As a Process*), which stresses the dynamic elements of psyche, and also to the concept "psychic property", indicative of stable manifestations of individual psyche, ones characterised by persistence and recurrence in the structure of a given *personality*. The same manifestation of psyche may be examined in different aspects. For instance, an affect, as a P.S., represents a generalised characteristic of the emotional, cognitive and behavioural aspects of individual psyche in a definite, relatively limited time interval; as a psychic process, it is characterised by stagewise development of *emotions*; it may also be regarded as a manifestation of a person's psychic properties (quick temper, lack of restraint, anger). Manifestations of *sentiments (moods*, affects, *euphoxia, anxiety, frustration*, etc.), *attention (concentration, distraction), will (resoluteness)*, confusion, self-discipline, *thinking* (doubts), *imagination* (day dreaming), etc. also relate to P.S's.

Special subjects of psychological research are P.S's under *stress* (in combat, during exams or in other extremal situations, such as at the period prior to athletic competitions). *Pathopsychology* and *medical psychology* study pathological P.S's namely *obsessions*, and *social psychology*, mass P.S's, e.g. *mass panic*.

Psychoanalysis, (1) a set of methods for revealing for psychotherapeutic purposes the specifics of human emotional experiences and activities caused by unconscious *motives* (see *Psychotherapy; The Unconscious; Neuroses)*; (2) a theory developed by Sigmund Freud and his followers (see *Freudianism; Analytical Psychology; Individual Psychology; Neo-Freudianism)*.

Psychobiography, a method for psychologically analysing the personality of specific persons, primarily politicians. Initially appeared within the framework of Sigmund Freud's *psychoanalysis* and was hallmarked by his disregard for the role of socio-historical factors in individual development and behaviour, and by their substitution for a biological interpretation of psychological phenomena and for psychologised explanations of social and political events. The first work in P. described the personality of Woodrow Wilson, the former US President, with Freud taking part. At present, all American presidents and many other politicians in the United States and other countries are made the objects of P., and the authors of this analytical method use the results of *cognitive psychology* increasingly often. In examining the personalities of men of culture, Soviet psychologists apply the psychobiographic method basing on the postulate that creative work in any area of activity is socially conditioned.

Psychodiagnosis, a sphere of psychology which elaborates methods for revealing the individual features of and prospects for personality development. P. began to be used in the 19th century by James Cattell, Francis Galton, Hermann Ebbinghaus, and others. A serious contribution to P. was made by the French psychologist Alfred Binet and collaborators, who developed methods for diagnosing the level of intellectual development in children (IQ test, 1905-1911). Owing to the heterogeneity of P. sources and component elements, Western psychology gives a controversial interpretation of its tasks and has no single scientific and practical discipline of P. with its own subject-matter, theory and method. In Marxist psychology, P. is designed to develop an effective system of diagnostic methods allowing to solve the tasks posed before psychology by socialist society. At present, P. uses numerous methods to study the influence on personality of education and age; training, professional, and sporting activities; and so on. These methods may conventionally be classified into four types, viz., tests (see *Intelligence Tests; Achievement Tests; Criteria-Oriented Tests;* etc.), and personal questionnaires; projective techniques (see *Projective Tests);* and psychophysiological

methods. The latter serve to diagnose individual manifestations of the properties of the nervous system and to reveal the dynamic features of psyche (activity rate, ability to switch-over, duration of active working efficiency, etc.). Any psychodiagnostic method must be accurate, reliable (see *Reliability of a Test*) and, most importantly, valid (see *Validity*). The practical efficiency of diagnostic techniques would depend on their substantial tie with basic psychological research, and also on the use of appropriate means for analysing, assessing, and measuring the phenomena to be diagnosed.

Psychodrama, a form of group psychotherapy (see *Psychotherapy, Group*), when patients take turns as actors and spectators, their roles being designed to simulate situations of personified *meaning* for the participants in order to eliminate inadequate emotional responses, tram social perception (see *Perception, Social*), and attain deeper self-cognition. The concept and procedure of P. was suggested by Jacob Moreno (USA), who without proper justification interpreted the method as a means for solving social problems. (In Western Europe and the United States, the term "sociodrama" is also used signifying a way of eliminating conflicts in groups of healthy people). The important elements of P. are spontaneity, activeness, and improvised behaviour. P. is applied in *neuroses*, child neuroses inclusive, and also in psychosomatic diseases and alcoholism, and in aggravated *psychopathies* and teenage *deviant behaviour*. Family P. s also possible. P. elements are included in behavioural *psychotherapy*, socio-psychological training, and business games (see *Socio-Psychological Training; Game, Business*).

Psychogenetics, a sphere of psychology marginal with genetics. P. studies the origin of individual psychic traits in humans to elucidate the effect thereon of the genotype and the environment. P. uses the methods of modern genetics. The most informative one is the twin method (Francis Galton, 1876), which allows to maximally level out environmental effects. Most works on P. are devoted to a variety of tests for studying the inter-individual variability of higher psychological functions, chiefly of *intellect*. Psychogeneticists have found the degree of kinship (i.e. the number of common genes) to be proportional to the results of many IQ tests. Basing on this, West European and American geneticists had till recently believed that man's intellectual potential is conditioned by heredity. However, in recent years, it has been concisingly shown that P. methods are insufficient and IQ tests questionable for making such conclusions and diagnosing intellect. Most West European and US psychologists ignore the development of human psychic functions. Soviet psychologists have shown that *ontogenesis* involves a change of mental function mechanisms: elementary forms inherent in early stages are replaced by higher, socially-conditioned factors that are actualised with intimate participation

of speech. Some facts obtained in P. give ground to think that, together with change of mechanisms, the relation of psychological functions to the genotype also changes: the greater the role of specifically human factors of social origin, the lesser the share of genetic variability in the forming of individual psychological features (Inna Ravich-Shcherbo).

Psychogenies, pathologic, but reversible mental disorders arising under the influence of psychic traumas, both very acute (e.g. loss of some close relative) and weak, but persistent ones, which engender inner conflicts (e.g. controversy between sense of duty and desire). P. also arise as a result of lengthy nervous stress, and severe somatic diseases. Conventionally, P. are classified into *reactive states* and neuroses (see *Neuroses, Clinical*). Psychogenic disorders whose intensity is not very high and which are endured without loss of working ability are called psychogenic reactions, neurotic ones inclusive.

Psychohygiene and Psychoprophylaxis, spheres of *medical psychology* designed to afford specialised aid to practically healthy people in order to prevent neuro-mental and psychosomatic diseases, and also to alleviate acute psychotraumatic reactions (see *Psychogenies*). P. and P. methods involve psychocorrectional work within the framework of consultation centres, "confidence telephones" and other organisations oriented to psychological aid to healthy people; mass examinations aimed at revealing so-called risk groups and conducting preventive work therewith; and providing information to the public. Special tasks of modern P. and P. are to help people in critical family, training, or job situations, to work with young disintegrating families, and so on.

Psycholinguistics, a scientific discipline that studies the dependence of *speech* processes and speech perception on the structure of some specific language (or language in general). In its contemporary meaning, the term P. was introduced by the US scholars Charles Osgood and Thomas Sebeok, who relied on *neobehaviourism* and descriptive linguistics (the so-called Yale School). Beginning in the 1960s, American psycholinguistics were oriented to Noam Chomsky's theory of "generative grammar"; but, beginning in the late 1970s, they have tended to reject it in favour of guests for a general psychological theory. In Britain, France, West Germany, and other Western countries, P. developed in a similar way; however, owing to their strong psychological tradition, Chomsky's ideas did not become so widespread. In the USSR, P. began to develop in the mid-1960s, its main trend being in the theory of speech activity (examination of speech processes as a particular case of activity). The creation and development of P. was connected with a whole series of applied tasks of *engineering psychology*, neuro- and *pathopsychology*, and foreign language training (Alexei A. Leontiev).

Psychological Anthropology. *see* **Ethnopsychology.**

Psychological Institutions (in the USSR), research institutes or their structural units; departments of psychology at universities (in Moscow, Leningrad, Tbilisi, and Yaroslavl); branch laboratories, and chairs of psychology at institutions of higher learning engaged in psychological research and training of psychologists. The USSR has the following four psychological research institutes: Institute of Psychology of the USSR Academy of Sciences (organised in 1971), which is the country's central institution for psychological research; Research Institute of General and Pedagogical Psychology of the USSR Academy of Pedagogical Sciences (founded in 1912); D.N. Uznadze Institute of Psychology of the Academy of Sciences of the Georgian SSR (founded in 1941); and Psychological Research Institute of the Ministry of Education of the Ukrainian SSR (established in 1945). Special departments at some research institutes (Research Institute of the Study of Handicapped Children of the USSR Academy of Pedagogical Sciences; Research Institute for Preschool Education of the USSR Academy of Pedagogical Sciences; V.M. Bekhterev, Psychoneurological Research Institute; etc.) also study psychological problems. P.I. have postgraduate departments, issue their own publications, and run specialised councils where doctorate and candidate dissertations in psychology may be defended.

Psychological Instrument, an element in the structure of a psychic function whose role is similar to that of an implement in the structure of human labour activity. In the *cultural-historical theory*, signs ("instrumental stimuli") are regarded as P.I's. In this capacity, they basically differ from the *signs* (verbal and non-verbal) traditionally studied by psychology and constituting the content of *memory*, since the structural element ("signs without meaning"), not the content, is intentionally distinguished in the former. According to Lev Vygotsky, P.I's are acquired by humans in the course of interiorisation of joint activity in *ontogenesis*.

Psychological Journals (in the USSR), periodical scientific publications covering the problems and development of the science of psychology. In pre-revolutionary Russia, the following Russian-language P. J. (or journals that gave prominence to psychological problems) were published: *Voprosy filosofii i psikhologii* (Problems of Philosophy and Psychology) 1889-1918; *Vestnik psikhologii, kriminalnoi antropologii i gipnotizma* (Herald of Psychology, Criminal Anthropology, and Hypnotism), 1904-1918, from 1911 called *Vestnik psikhologii, kriminalnoi antropologii i pedologii* (Herald of Psychology, Criminal Anthropology, and Child Study); *Obozreniye psikhiatrij, nevrologii i eksperimentalnoi psikhologii* (A Review of Psychiatry, Neurology, and Experimental Psychology), 1896-1918. The journals published after the Great October

Socialist Revolution were as follows: *Voprosy izucheniya i vospitaniya lichnosti* (Problems of Personality Study and Education), 1920-1932, except for the years 1923-1925; *Psikhologiya* (Psychology), 1928-1932; *Zhurnal psikhologii, nevrologii i psikhiatrii* (Journal of Psychology, Neurology and Psychiatry) (from 1922, published irregularly); *Psikhiatriya, nevrologiya i eksperimentalnaya psikhologia* (Psychiatry, Neurology, and Experimental Psychology), 1922-1923; *Pedologia* (Child Study), 1928-1932; *Psikhofiziologia truda i psikhotekhnika* (Psychophysiology of Labour and Psychotechnique), 1928-1934 (from 1932, called *Sovetskaya psikhotekhnika* (Soviet Psychotechniques); *Klinicheski arkhiv genialnosti i odarennosti* (Clinical Archives of Talent and Giftedness), 1925-1930. The currently published P.J. are as follows: *Voprosy psikhologii* (Problems of Psychology), since 1955; *Psikhologiya. Vestnik Moskovskogo universiteta* (Psychology. Herald of Moscow University), since 1977; and *Psykhologicheski Zhurnal* (Psychological Journal), since 1980. Psychological problems are also presented in the journals *Sovetskaya pedagogika* (Soviet Pedagogy), published since 1937; *Voprosy filosofii* (Problems of Philosophy), published since 1947; *Zhurnal vysshei nervnoi deyatelnosti imeni I.P. Pavlova* (The I.P. Pavlov Journal of Higher Nervous Activity), published since 1950; and others.

Psychological Research Equipment, instruments, devices and mechanisms applied for recording and measuring mental processes, functions, and states. It includes: (1) detectors (transducers) designed to detect and transform primary *signals* into a form suitable for subsequent registration and processing; (2) monitor and recording devices designed either to expose the subject to a *stimulus* or to record the subjet's answers; (3) measuring devices, designed to receive quantitative information on the properties of objects and phenomena. Detectors in psychological and psychophysiological research include all types of electrical, mechanical, and chemical detecting devices. Monitor and recording apparatuses include needle and dial electrical and radio gauges, mechanical equipment, photographic and cinematographic equipment, video and audio taperecorders, dictaphones, and polygraphs. Measuring devices include: (a) mechanical and electronic stop-watches, reflexometers, and chronoreflexometers to measure temporal characteristics; (b) luxmeters, anomaloscopes, *taxistoscopes* to measure visual characteristics; (c) audiometers, noisimeters, amplifiers to measure hearing; (d) esthesiometers and compasses to measure the characteristics of the tactile analyser. Of special importance are computers, used not only for calculation and statistical data processing, but also for direct control of the process of experiment. Computers combine gauging, monitoring, and recording functions, and are superior to all previously applied types of psychological apparatuses in accuracy, speed, and degree of automation. The application of computers increased the productivity

of psychological research, and in some cases eliminated the possibility of researcher's negative influence on the course of the experiment.

Psychological Selection, *decision-making* concerning the enlistment of candidates whose results in psychological tests show they have more chances for being fit for professional, academic or other *activity*. Specifically, P.S. is applied in sports, *military*, *space*, and *engineering psychology*. P.S. is preceded by specifying the psychological requirements to the candidate, and by choosing test methods by analysing his future activity. The hypotheses about validity of these requirements and methods is often tested on representative samples by comparing the test results with the subject's work efficiency. Some types of activity contain demands to specific psychic qualities that are hard to develop (e.g. those related to the properties of the *nervous system*). In other types of activity, every normal person may satisfy these requirements. In this case, the need for P.S. would arise when (1) the period of forthcoming human activity is to be relatively short, say, from 5 to 10 years, like in professional sports; and (2) resistance to established psychomotor, intellectual, and other *stereotypes* does not allow a person to master the techniques of his future activity within an acceptable period of time. In both cases, psychological tests establish the possibility to attain the needed (socially acceptable) efficiency. No matter how carefully prepared and realised P.S. is, it does not demonstrate in a definite way the candidate's fitness for a given type of activity. To be fit, the person in question must possess positive *motivation* that had developed before or during that activity. The efficiency of P.S. is assessed by comparing the results of psychological tests with an external criterion, namely, some impartial indicator of efficiency; in this case, the psychological characteristic of it must correspond to the methods used in the psychological tests. Medical selection is often performed along with P.S., and the results of both supplement each other.

Psychological Service, a system for practical application of psychological science in solving complex tasks of psychological expert examination, diagnosis, and consultation in industry, education, health care, public order, etc. Organisationally, P.S. takes forms of *vocational guidance* offices, the family and marriage service, psychological centres within the system of the scientific organisation of labour, etc. Development of P.S. is an important task of applied psychology, such as *medical*, *pedagogic*, *juridical psychology*, *psychology of management*, *psychology of sport*, and other areas.

Psychological Time, reflection in man's psyche of a system of temporal relations between the events of one's lifetime. P.T. includes estimates of synchronism, sequence, duration and speed of events; their relation to the present, remoteness in the past or future; experience of compactness or extension of time, of its discreteness or continuity.

limited or infinite nature; awareness of age, age periods (childhood, youth, maturity, and old age); ideas about life expectancy, death and immortality, historical links of one's own life with that of previous and subsequent generations of one's family, society, and mankind as a whole. Fiction and philosophical literature contain abundant material for studying P.T. Several approaches may be distinguished in psychology which explain and experimentally study P.T. According to the "quantum" concept, there are different-scale subjective "time quanta" (lasting from milliseconds to decades), which, in fact, condition various experiences of time, e.g. estimates of synchronism and distinction of the psychological present. From the viewpoint of the event concept, P.T. specifics would depend on the number and intensity of occurring events (changes in internal and external media and in man's *activity*). However, the "quantum" and event approaches have failed to solve a number of basic issues, namely the possibility for P.T. to reverse and be multi-dimensional; the nonlinear sequence of the psychological past, present and future; and the unit of age categorisation. To overcome these difficulties, Soviet psychologists are developing an approach, according to which P.T. reflects a complex system of mutually conditioned inter-event relationships of the "cause-and-effect" and "objective-and-means" type, not merely chronological intervals and events per se.

Psychology, a science about the regularities of development and functioning of psyche as a special form of vital activity. The interaction of living creatures with the environment is actualised through psychic processes, acts, and states that differ in quality from their physiological counterparts, but are inseparable therefrom. For centuries, phenomena studied by P. were designated by the general term "*psyche*" (soul) and regarded as a chapter of philosophy called P. in the 16th century. Evidence about these phenomena also accumulated in many other investigations, and in various spheres of practice (especially in medical and teaching practice). The peculiarity of these phenomena; the fact that they are given to man in the form of direct, inseparable *emotional experiences*, their particular cognisability, caused by the individual's ability for *self-observation* and self-report thereon; and their intimately personal value to the subject in question were interpreted by religious and idialistic teachings as indicative of their special origin. The opponents of this view developed a materialistic tradition oriented to allying P. with natural science, one that consolidated scientific knowledge about psyche, proceeding from the advances made in studying its material substrate (*sense organs* and higher nerve centres).

The successes of neurophysiology and biology led to the development of P.'s own categories; subsequently due to increased experimental work, P. began to divorce from both philosophy and physiology, given that the psychological regularities established in the

laboratory failed to coincide with the evidence of anatomic and physiological studies. It was proven that psychic processes, being the product of the individual's interaction with the environment, are themselves an active causal factor (determinant) of behaviour. Whereas idealistic concepts misinterpret this activity as having a special psychological causation cognised through inner observation *(introspection)*, natural scientific studies of genetically primary forms of psyche (and also of its pathological manifestations) established the priority of objective methods which subsequently became decisive for P. *Self-observation* retains the significance of an important, but auxiliary source of information on human mind, whose essential characteristic is *consciousness*. Being the result and function of social (supraindividual) processes, an individual's consciousness has its own systems and semantic organisation which causes various psychic manifestations (cognitive, motivationally affective, operational, and personal properties) that differ in quality from those inherent in animal psyche. The possibility to understand cognitive processes irrespective of the individual's reflection (self-account) is due to the fact that they arise and develop in an objective system of the individual's relations with other people and the environment. Within the same system, by "scrutinising" others, the individual acquires the ability to judge about the inner part of his own behaviour (see the *Self-Concept*). Not all the components of this part are translatable into the language of consciousness; yet, they too, in forming a sphere of the *unconscious*, serve as a subject of P., which reveals how the individual's actual *motives* and *attitudes* correspond to his ideas about the latter. Both conscious and unconscious psychic processes are achieved by neurohumoral mechanisms operating by physiological laws; however they take place by their own laws, not by the afore-mentioned ones, since human psyche comprises both natural and socio-cultural reality and the life of the acting individual. Activity per se is not a subject-matter of P.; nor is human activity as a whole, for it is studied by a number of disciplines. P. examines solely a specific aspect of human activity. The dependence of human behaviour on biological and social factors determines the specifics of its study in P., which develops in a "dialogue" between evidence on nature and culture, an evidence integrated in the psychological concepts used by other sciences.

The dialectico-materialistic teaching on consciousness, being an active reflection of reality conditioned by socio-historical practice, allowed to elaborate the basic problems of scientific P. from new methodological positions. These are: the psychophysiological problem (concerning the relation of psyche to its corporeal substrate); the psychosocial problem (on the dependence of psyche on social processes, and on its active role in actualising those processes by specific individuals and groups); the psychopraxical problem (on the forming of psyche in the course

of practical activity, and on the dependence of that activity on its psychic regulators, viz., images, operations, motives, and personal properties); the psychognostic aspect (on the relation of sensory and mental psychic images to the reality which they reflect); and so on. These problems are elaborated on the basis of such principles as determinism revealing the determination of phenomena by the action of their productive factors), systems quality (interpretation of these phenomena as inherently related components of an integral psychic structure), and development (recognition of the fact that mental processes transform and change to pass from one level to another and to develop new forms of psychic processes). The elaboration of the basic problems of P. resulted in its categorial system, which includes the categories of image, motive, action, personality, etc. Psychological research is inseparable from social research, from social demands for knowledge necessary in such areas as training, educating, and selecting personnel for industry, agriculture and culture, and for stimulating individual and collective activity. In reflecting psychic reality in its original characteristics, P.'s *categorial structure*, is the foundation or "trunks" of the entire diversity of the ramifications of contemporary P. which appear in the form of separate branches, many of which have now acquired an independent status (see *Aviation P., Military P., Developmental P., Differential P., Animal Psychology, Engineering P., Historical P., Space P., Medical P., Neuropsychology, General P., Pathopsychology, Pedagogical P., Psychogenetics, Psychohygiene, Psychodiagnosis, Psycholinguistics, Psychometry, Psychosemantics, P. of Art, P. of Science, P. of Propaganda, P. of Sport, P. of Creative Activity, P. of Labour, P. of Management, Political P., Psychotherapy, Psychopharmacology, Psychophysics, Psychophysiology, Defectopsychology, Social P., Comparative P., P. of Economics, Ethnic P., Ethology,* and *Juridical P.).* Differential and integrational processes that turned P. into a "cluster" of branches were caused by the demands of various fields of practice which make P. run into problems related to a particular field. As a rule, these problems are complex and, hence, worked out by numerous disciplines. The inclusion of P. into interdisciplinary research would only be productive when P. would enrich the latter by concepts, methods, and explanatory principles inherent only in itself. At the same time, as a result of contacts with other sciences, P. itself is enriched with new ideas and approaches to enhance its knowledge and categorial system, which ensures its integrity as an independent science.

In the current revolution in science and technology, the transfer to electronic devices of certain functions previously inherent solely in the human *brain*, namely the functions of data storing and retrieving, management and control, had a serious impact on the further development of P. This made it possible to widely use cybernetic and data-processing concepts and

models to help formalise and mathematise P. and introduce a cybernetic style of thinking with its advantages caused by the use of logical-mathematical programmes, computers, and other devices. Automation and computerisation have sharply raised the interest in quick diagnosis and prognosis and effective use and cultivation of human functions that cannot be transferred to electronic devices, primarily creative abilities ensuring further progress in science and engineering. The study of *artificial intellect*, on the one hand, and of *creative activity*, on the other, are currently becoming important trends in P. This is accompanied by rapid development of social P. and management P. both of which solve problems concerning the role of the "human factor" in social development, in management processes, and also in research concerned with space exploration and with demographic, ecological and other urgent issues of our time. The interaction of P. with various social, natural, and applied science (both in theoretical and applied research) makes it particularly important to provide a methodological analysis of its conceptual means, explanatory principles, theories and procedures for revealing its most promising development trends. All this results in the struggle of opposite *world outlooks*, which fact determines the important role of P. in the current ideological struggle and its direct relationship with sociopolitical processes taking place in the world today.

Psychology of Art, the study of the psychological mechanisms of artistic activity, particularly the manifestations of personality in creating and perceiving works of art. The traditional problems of P. of A. in its different forms (music, painting, literature, theatre, cinema, choreography, and architecture) include creative work at all stages, from project to creation, perception, and assessment of the work in question. P. of A. studies processes whereby an artistic image appears, the processing of past experience, creative *imagination* and thinking, creative psychic states, and also the *activeness* and *orientation* of a given personality, his or her artistic *abilities* and *talent*. The works of Soviet psychologists from the Kharkov Psychological School (Alexander Potebnya, and others) were instrumental in developing the currently accepted concept that the process of artistic perception is inherently a collective one. Soviet P. of A. studies the process of artistic perception in various groups differing in age, education, cultural level, and socio-demographic features. It examines the mechanisms of psychic perception adequate to the structure of a given work of art, and also the conditions under which that process is distorted; the psychological aspects of artistic education; the forming of artistic abilities, taste, aesthetic sensitivity; and the specifics of children's creative activity. The Soviet psychologist Lev Vygotsky developed an original approach to P. of A. He believed that its main problem concerns the psychological mechanisms of the aesthetic response of people perceiving a work of

art. In his view, this aesthetic response is programmed by the very structure of the work in question. Contemporary P. of A. uses a systems approach which allows to study the psychological aspects of a given work of art and the process of aesthetic perception in correlation and unity.

Psychology of the Blind Deafmute, see *Typhlopsychology*.

Psychology of Creative Activity, a branch of psychological study of people's creative activity in science (see *Psychology of Science*), literature, music, graphic and scenic art (see *Psychology of Art*), invention, and rationalisation. Methodologically, P. of C.A. is based on the principle of historicism. A special section of P. of C.A. is the study of child creative activity. Specific P. of C.A. problems concern the study of the role of *imagination*, *thinking*, *intuition*, *inspiration*, situationally independent activeness (see *Activeness, Situationally Independent*), and individual psychological features expressed in the course of creative activity, such as abilities, talent, ingenuity, etc., effects produced on personality by its inclusion in a creative collective (see *Social Facilitation*), various factors capable of stimulating creative activeness (group discussion, *brain storming*, certain psychopharmacological agents, etc.).

Psychology of Labour, a science which studies the psychological regularities that govern the forming of concrete aspects of work and human relation thereto. The foundations of P. of L. formed under the influence of medicine, physiology, technology, sociology, and psychology. The inclusion of these disciplines in the study of labour was prompted by recognition of the fact that good organisation of labour could raise productivity better than intensification of labour. Each of these disciplines helped develop P. of L. and formulate its tasks. The accepted view is that P. of L. became an independent scientific discipline following the publication of *Psychology and Production Efficiency* (1913) and *The Fundamentals of Psychotechniques* (1914) by G. Münsterberg. A substantial contribution to the study of labour was made by the Russian physiologist Ivan Sechenov, whose works, such as *Physiological Criteria for Establishing Working Day Duration* (1897), and *An Essay on Human Work Movements* (1901) initiated research on rational organisation and planning of labour. However, much time was needed for P. of L. to overcome the eclectic nature of its polydisciplinary legacy and to distinguish its own subject so as to prompt new relevant investigation trends, viz., *engineering psychology*, *aviation psychology*, *space psychology*, and *ergonomics*. Investigations by Soviet scholars Alexei Gastev, Konstantin Platonov, and others helped P. of L. become established and its tasks comprehended on the basis of the Marxist-Leninist view that labour is essentially humanistic. Today, the main tasks of P. of L. are to study the psychological factors of complexity, reliability, productivity,

labour quality, development of *personality* in work, mutual adaptation of man and the implements of labour, and *vocational orientation*, and to determine the psychological characteristics of different professions.

Psychology of Management, a branch of psychology that studies the psychological regularities of management. The basic task of P. of M. is to analyse the psychological conditions and specifics of managerial activity in order to enhance management efficiency and quality. In the USSR, P. of M. has intensely developed since the early 1970s. At the present stage of developed socialism, the CPSU is focussing on further improving all managerial elements. Management is actualised in the manager's activity, in which P. of M. distinguishes the diagnosing and forecasting of the state of and changes in the managerial subsystem; the forming of a programme of activity for employees, one aimed at changing the state of the managed object in a given direction; and organising the execution of decisions. In the manager's personality, P. of M. distinguishes his needs and abilities, and also his individual managerial concept, comprising the supertask, problems, schemes and accepted principles and rules which he has set for himself. The managerial subsystem studied by P. of M. is normally represented by the joint activities of a large group of hierarchically interrelated managers (executives). P. of M. examines the coordinating methods that make it possible to transform their individual actions into integrally collective management. These methods depend on the manager's legal rights; the interrelations of his duties; the incentives for his work; sex and age differences; human relations; and so on. The imperfect nature of those coordinating methods manifests itself in conflicts, departmental barriers, and parochialism. P. of M.'s major task is to study the psychological conditions required to make the managerial system function integrally. Inasmuch as the subject of management is the collective labour of a given organisation administered by that managerial mechanism and since the work and working conditions of these organisations essentially differ, the psychological peculiarities of management would in each case assume a specific aspect and be subject to specialised study, such as economic management and troop control.

Psychology of Propaganda, a field of applied *social psychology* which studies regularities of human interactions in systems formed by the propaganda source and audience, and also the effects of objective and subjective factors on the course and results of this process. P. of P. examines: (1) processes involving dissemination of messages at the level of forming, fixating or changing *attitudes* to socially significant objects; (2) the psychological aspects of processes involving the origin and functioning of *public opinion*; (3) ways of inducing people to *action* in connection with the objects of attitudes and opinions (Yuri Sherkovin and Boris Parygin). P. of P. is designed to reveal the socio-psychological char-

acteristics of the content and form of messages with regard to the audience's consciousness and the possibilities of specific mass media channels for optimally resolving certain social and political issues. One of P. of P.'s research problems is to study real and potential audiences from the viewpoint of their *value orientations* and need for information. P. of P. also analyses processes connected with perception of messages; their further processing and, finally, their acceptance or non-acceptance by a given individual. An important trend in P. of P. is to reveal the efficiency criteria of propaganda, regarded as something that serves a specific class and its political party. As an independent branch of social psychology, P. of P. was developed in the first quarter of the 20th century by American scholars, namely Bernard Berelson, Hadley Cantril, Paul Lazarsfeld, Gordon Allport, and Wilbur Schramm. While differing in detail, their works proved the same in their manipulatory approach to the audience's consciousness, even if they did proceed from mutually exclusive idealistic and vulgar-materialistic philosophical postulates. Today, their works have become the foundation for devising theories in manipulative propaganda and "psychological warfare", both aimed at obtaining maximal effect and characterised with minimum social responsibility. In some countries, introduction of these theories into practice is connected with propaganda of moral permissiveness, the cult of violence, exploitation of fears and prejudices, and fanning of war hysteria. The desire to make class propaganda look like objective information in the form of allegedly unbiased transmission of facts and commentaries has become an important feature in bourgeois P. of P. studies. In the USSR, initial investigations of P. of P. problems were conducted in the 1920s by several Soviet psychologists, who studied the effects of various publications on different audiences, the functioning of public opinion, and the influence of rumours on the minds of propaganda listeners at a time when the country was living through an acute class struggle, and most of the people were illiterate. With the appearance of new mass media devices, such as radio, television, etc. P. of P. began studying their psychological characteristics and potentials. Contemporary P. of P. takes into account that now that mass media technology is highly developed and millions of minds are susceptible to diversified propaganda, including that which objectively contradicts their vital interests and is conducted in the form of ideological subversion and psychological warfare, people's psychological interaction has become highly intensified.

Psychology of Religion, a branch of psychology that studies the psychological and socio-psychological factors which condition the specifics, structure and functions of religious consciousness. P. of R. appeared in the late 19th—early 20th centuries (Wilhelm Wundt, William James, Théodule Ribot, and others) and accumulated considerable material on the contents of religious consciousness, which includes such notions as god (spirit), paradise, hell,

sin etc, and also on people's emotional states and sentiments during prayer, confession, and other rites. Soviet P. of R., which is based on Marxist-Leninist philosophy, is designed to help in atheistic work with believers, and also to elaborate scientifically based preventive measures against religious prejudices and superstitions. P. of R. uses the tenets and methods of general and *social psychology*, sociology, ethnography, and history of religion. The laws governing the forming, development and functioning of religious psychology are studied along the following lines: (1) the general theory of P. of R. studies religious ideology, the contents and structure of religious consciousness, the specifics of religious sentiments, and the psychological functions of religion in the spiritual life of the individual and society; (2) differentiai P. of R. examines religious consciousness and believers' sentiments with account for the social environment and historical era in which they exist; (3) the psychology of religious *groups* examines the socio-psychological structure of religious communities; the mechanisms of *communication* (1), *imitation*, *suggestion*, and *attitudes*; and their impact on the minds, sentiments and behaviour of believers; (4) the psychology of cult studies the impact of religious rites on human mind; (5) the pedagogical psychology of atheist education, based on the achievements of P. of R., develops effective methods for atheist activities among the public.

Psychology of Science, a branch of psychology that studies the psychological factors of scientific activity to enhance its efficacy. P. of S. regards science as a socially organised sistem, a specific form of intellectual activity, whose products reflect reality in empirically controlled logical forms. Hence, P. of S. is inseparably linked with other fields of the integral "science about science", i.e. the study of the logic, history, sociology, organisation, economy, and ethics of science. This stand is instrumental in overcoming an individualistic approach to research, which, in all its aspects (intellectual, motivational, communicative, etc.), is believed to be conditioned by objective laws governing the development of science and by its historically variable structure, both objectively logical and social ones. P. of S. studies the psychological mechanism instrumental in producing scientific knowledge in individual and collective activity; examines issues related to psychological training of research personnel, to diagnosing and forming of corresponding personal qualities and orientations, and to the age dynamics of creative activity; and analyses the psychological aspects of scientific communications, perception and assessment of new ideas, and of automation (computerisation) of research. A branch of P. of S. is the social psychology of science, which studies the *activity*, *communication* (1), and *interpersonal relations* of scientists in different organisations and collectives with both formal and informal status. The latter include, for instance, *scientific schools* and "invisible colleges" (associations of scientists working in different institutions and communicating

with one another through personal contacts, both oral and written).

Psychology of Sex Differences, a section of *differential psychology* which studies differences between individuals that are caused or conditioned by their sex, or associated with it. In addition to universal biogenetic distinctions between men and women, many of their empirically observed features have been caused by historically established differentiated masculine and feminine social roles, sex-dependent division of labour, distinctions in raising and educating boys and girls, and the cultural stereotypes of masculinity and feminity. As men and women become socially equal in reality, sex relationships based on subordination of women loose their previous nature; the sphere of joint activities of men and women expands to cause their psychological distinctions, formerly regarded as hard-and-fast, to either disappear or diminish. The degree and essence of sex distinctions are not the same in different spheres of vital activity. The most significant ones were established in *psychophysiology* (including different physical development and maturity rates). Some psychological features in females are connected with their specific maternal functions, which manifest themselves both in their interests and correlation of their socio-productional and family functions. Many sex distinctions are altogether immeasurable, being, as they are, not so much quantitative but qualitative. Test measurements of masculine and feminine qualities are higly conventional, and the masculinity and femininity scales used represent relatively independent dimensions. Awareness of one's sex affiliation is the initial element in the image of one's *Self*. P. of S.D. has important practical significance for vocational selection (see *Psychological Selection*) and vocational orientation, and for solving numerous problems relating to *medical psychology* and the family.

Psychology of Sport, a branch of psychology that examines various aspects of sports activities and physical culture. In the USSR, P. of S. began to be intensely studied in the 1960s and 1970s by Pyotr Rudik, Avksenti Puni, Vladimir Melnikov, et al. P. of S. also studies the psychological aspects of the athlete's personality. It develops diagnostic techniques for selecting persons for specific sporting events and effective training methods. P. of S. also elaborates methods for providing the necessary psychological support of athlete behaviour at different competition stages. It examines the athlete's *psychic states* in various complex situations. The main task of theoretical and applied P. of S. investigations is to help optimise sporting activity, which is distinguished by competitive nature, regulated by specific rules, and assessed by the public. P. of S. is also designed to develop the psychological foundations of sporting skills by teaching optimal locomotor habits and proper control of one's body, and by fostering the athlete's willpower and all-round development.

Psychometry, initially: measurement of

time characteristics of psychic processes. Nowadays P. is often understood to include the entire range of issues connected with *measurement* in psychology. In this sense, P. also includes *psychophysics*. An important feature of psychometric procedures is their standardisation, which implies investigations at maximally constant external conditions. Basing on the data obtained, the investigator would construct various *scales* of individual properties and infers the *reliability* and *validity* of a given test technique. Recent years have witnessed a tendency to develop psychometric procedures and models that make it possible to account for both variable situations and the individual peculiarities of the subject.

Psychopathy, pathology of *character*, in which the individual is found to have virtually irreversibly pronounced properties preventing his adequate *adjustment* in a given social environment. P's result from: (1) desease (*brain* injury, infection, intoxication, psychic trauma, etc.), and (2) inborn deficiency of the *nervous system*, caused by heredity, influences detrimental to the foetus, birth traumas, etc. These injuries, called constitutional or true injuries, show up already in childhood in the form of disturbances in the emotional-volitional sphere; in this case, the *intellect* may be relatively intact. In adult age, the degree of prominence of P. would depend on upbringing and environmental effects. P's manifestations are various. Despite the fact that pure types of P. are rare and that mixed forms prevail, the following classical types of P. are commonly distinguished (P.B. Gannushkin): (1) cycloids, chiefly characterised by continuous changes in *mood*, the cycle fluctuations varying from several hours to several months; (2) schizoids, characterised by avoidance of contacts, reserved disposition, easy vulnerability, absence of *empathy*, and awkward movements; (3) epileptoids, whose main feature is extreme irritability with fits of anguish, *fear*, anger, impatience, stubbornness, touchiness, cruelty, and propensity for quarrel (brawl); (4) asthenics, characterised by increased sensitivity and psychic excitability combined with easy exhaustion, irritability, and indecision; psychasthenics, characterised by anxiety and lack of self-confidence, and inclined to constant brooding and *pathological doubts*; (6) paranoiac psychopaths, who tend to form *supervalent ideas*, and are stubborn, egotistic, highly self-assured, and characterised by exaggerated self-appraisal; (7) hysteric psychopaths, characterised by the desire to attract the attention of other people by all means; in this case, their assessment of real events is always distorted in their own favour; hysteric psychopaths are also characterised by affectation and theatricality; (8) unstable psychopaths, chiefly typified by weak character, absence of profound interests, and ready susceptibility to other people's influence; (9) organic psychopaths, distinguished by innate mental underdevelopment; they may be good students, but cannot apply their knowledge or show initiative: again they can "look wise" at social gatherings, but their judge-

ments are banal. There is no distinct boundary between psychopaths and normal characters. Normally, people with similar characters, but without pathological (psychopathic) prominence (see *Character Accentuation*), correspond to the above-mentioned types of psychopaths. Under the effect of illness or psychic traumas, psychopaths may develop acute and prolonged reactive and neurotic states (see *Psychogenies*), and also *depressions*. Adequate education, and psychotherapeutic (see *Psychotherapy*) and psychopharmacological (see *Psychopharmacology*) treatment, are of major significance in preventing P.

Psychopharmacology, a branch of *psychology* related to pharmacology, medical psychology, pathopsychology and neurophysiology and concerned with the effects of pharmacological agents, particularly psychotropic agents, on human mind. In the USSR, effective remedial agents for treating neuro-psychic disorders and arresting raving, *hallucinations*, psychomotor excitation, memory disorders, *depressions*, etc. are developed and introduced into practice under compulsory control by the USSR Ministry of Health. A recent development has been the forming of vocational P., oriented to correcting people's mental states under extreme conditions (emotional tension, *tiredness*, *adaptation* to extraordinary ecological factors). In addition to clinical and physiological methods, P. also uses psychological techniques, revealing deep-seated mechanisms that make psychic functions dependent on their biological substrata, the *brain*. The achievements of P. have important natural-scientific and philosophical significance.

Psychophysical Interaction, an idealistic approach to the *psychophysical problem* according to which *consciousness* and its nerve (bodily) substrate are two independent factors influencing one another. The dualism of this concept (dating back to Descartes) is incompatible with the scientific explanation of the psychic regulation of the *behaviour* of man as a wholesome creature.

Psychophysical Parallelism, an interpretation of the *psychophysical problem*, according to which the psychic and the physical (physiological) represent two independent processes, which, though being inseparable and correlated, are not causally connected. The P.P. concept was advanced both in the systems of materialistic (David Hartley, Alexander Bain, and others) and idealistic (Nicolas de Malebranche) Gottfried Leibniz, Wilhelm Wundt, and others) views on psyche. In the former, P.P. signified the inseparability of *consciousness* from the *brain*, and in the latter—the independence of consciousness from material effects, its subordination to a specific psychological causality. In both cases, the psychophysical problem was not solved positively, since consciousness was regarded only in its relationship to processes inside the body. The reflective nature of men-

tality, and its regulative role in *behaviour*, could not be scientifically explained within the framework of P.P.

Psychophysical Problem, broadly understood as referring to the role of the psychic in nature and, narrowly, as the question of correlation of psychological and physiological (neural) processes. In the second instance, it would be more correct to term P.P. as the psychophysiological problem. P.P. became particularly urgent in the 17th century, when scientists began to take a mechanistic view of the world, basing on which Descartes tried to explain the *behaviour* of living creatures by analogy of mechanical interaction. Acts of *consciousness*, inexplicable from such interpretation of nature, were ascribed to incorporeal, non-spatial substance. The question about the relationship of that substance to the work of the "body machine" led Descartes to the concept of psychophysical interaction, namely to the view that even though the body only moves and *psyche* only thinks, they may affect one another by contacting in some specific part of the *brain*. Hobbes and Spinoza, who spoke out against viewing psyche as a specific substance, claimed it to be fully deducible from the interaction of natural bodies; yet, they failed to resolve P.P. in a positive way. Hobbes suggested that *sensation* be regarded as a by-product of material processes (see *Epithenomenalism*), and Spinoza, assuming that the order of ideas is the same as the order of things, regarded *thinking* and expansion as inseparable and, at the same time, causally unrelated attributes of infinite matter, i.e. Nature. Gottfried Leibniz, by combining mechanistic picture of the world with the idea that psyche is a unique substance, advanced the idea of *psychophysical parallelism*, according to which the soul and body perform their operations independently of each other, but with high precision that creates the impression that they are coordinated. They are, in fact, like a pair of watches that always show the same time, though working independently. David Hartley and other naturalists gave psychophysical parallelism a materialistic interpretation. Psychophysical parallelism became highly popular in the mid-19th century, when the discovery of the law of conservation of energy made it impossible to represent consciousness as a specific force capable of changing behaviour at random. At the same time, Darwin's teaching on evolution of the organic world required that psyche be understood as an active factor in controlling vital processes. This led to new versions of the concept of psychophysical interaction (William James). The late 19th and early 20th centuries were marked by the spread of Mach's interpretation of P.P., according to which the soul and body consist of the same "elements" and, therefore, the question should concern the correlation of "sensation complexes", not the actual interconnection of real phenomena. Present-day logical positivism regards P.P. as a pseudoproblem and assumes that the difficulties involved can be solved by applying various

languages to describe consciousness, behaviour and neurophysiological processes. In contrast to idealistic theories, dialectical materialism interprets P.P. by basing on an understanding of psyche as a specific property of highly organised matter, a property that originates in the interaction of living creatures with the environment and, in reflecting the latter, can actively affect the nature of this interaction. Various branches of psychophysiology and related disciplines have accumulated enormous knowledge on the diverse forms of dependence of psychological acts on their physiological substrata, and on the role of these acts (as brain functions) in organising and regulating the vital activity of men and animals (teaching on the *localisation of higher mental functions*; on *ideomotor acts*; evidence provided by some sections of *neuro-* and *pathopsychology*, *psychopharmacology*, *psychogenetics*, etc.).

Psychophysics, a classic branch of *general psychology* developed by Gustav Fechner. The specifics of P. is in that it explains the diversity of observed forms of individual behaviour and mental conditions primarily by the different physical situations that evoke such *behaviour* and *psychic conditions* (see *Psychometry*). Most developed are psychophysical investigations of sensory processes. They distinguish two areas of problems, namely measurement of the *threshold of sensations* and construction of psychophysical *scales*. Application of modern techniques for describing the subject's work allows to account for the specifics of intrinsic *activity*, notably the criteria of decision-making, in addition to the *sensibility* of the sensory system. An example of present-day P. techniques is so-called multivariate *scaling* (Roger Shepard, and others), which allows to reconstruct the relative position of sensations in multi-dimensional subjective sign spaces. Such procedures are now widely used beyond sensory P., e.g. in the psychology of *emotions*, *psychodiagnosis*, *psychosemantics* (see *Subjective Semantic Space*), etc. This reveals the tendency to understand P. in a broader context and to integrate it with investigations in other branches of the science of psychology.

Psychophysiology, a field of interdisciplinary investigations abutting on psychology and neurophysiology and aimed at studying human mentality in unity with its neurophysiological substrate. Initially, the term "P." was used together with the term "physiological psychology" to designate a wide range of studies of psyche based on precise objective physiological techniques (Johannes Müller, Ernst Weber, Gustav Fechner, Hermann Helmholtz, and others). Unlike numerous Western investigations that failed to overcome the principle of psychophysiological dualism (see *Psychophysical Problem*) and are limited to establishing correlations between specific psychological and physiological parameters, Soviet P. by relying on Marxist-Leninist philosophy, and also on the ideas of the Russian physiologists Ivan Sechenov and Ivan Pavlov, regards psyche as

a product of *brain* activity. The main task of P. is to explain the causes of psychological phenomena by revealing their underlying neurophysiological mechanisms. The advances of contemporary P. are due to the fact that, in addition to traditional methods (recording of sensory, motor and vegetative responses and analysis of the consequences of brain injury and stimulation), investigators widely use electrophysiological techniques (electroencephalography, etc.) and mathematical methods to process experimental data. Within the framework of P., there are individual trends comprising the elaboration of more important problems. These are: sensory P. (P. of *sense organs*), P. of *movement* organisation, P. of *activeness*, P. of *memory* and teaching, P. of *speech*, P. of *motivation* and *emotions*, P. of *sleep*, P. of *stress*, P. of functional states, etc. A special trend in P. is represented by *differential P.*, which studies the physiological foundations of individual psychological differences. The achievements of P. are widely used in clinical practice; in simulating cybernetic models and psychophysiological processes; and in such applied fields as P. of labour, P. of sport, etc.

Psychosemantics, a field of psychology that studies the origin, structure and function of the individual system of *meanings*, which conditions perception, thought, memory, decision-making, etc. P. examines various forms in which meanings exist in the individual mind, namely images, symbols, symbolic actions, and also symbolic and *verbal* forms; and analyses the effect of the motivational (see *Motivation*) factors in and emotional states (see *Emotions*) of an individual on the system of meanings forming in him. The basic method of experimental P. is to simulate *subjective semantic spaces*, the model representation of the categorial structures of individual consciousness. P. studies both the general psychological and differentially psychological aspects of the process of *categorisation*. In the latter case, the task of P. is to reconstruct the systems of the individual's idea about the world by restructuring the systems of his individual and *personalised meanings*.

Psychosis, a profound (acute or chronic) mental disorder manifesting itself in distorted reflection of reality, clouded consciousness, changed self-awareness and *behaviour*, and changed attitude towards the environment. P. is caused by infectional or traumatic lesion of the *brain*, or by somatic diseases which lead to relapses of mental disorders. P. may result from constitutional or hereditary predisposition and manifest itself after some disease or psychological trauma. Some P. forms may be concomitant with pathological disorders of the cognitive and affective spheres in the form of *raving*, *supervalent ideas*, *hallucinations*, etc.

Psychostimulants (psychoanaleptics), see *Psychotropic agents*.

Psychotechnics, a branch of psychology that studies the concrete (applied)

aspects of human practical *activity*. P. originated in the early 1900s and was theoretically outlined in the works of the German psychologists Wilhelm Stern, G. Münsterberg, and others, who maintained that P. was chiefly designed for vocational selection and *vocational orientation*; for studying *tiredness* and *exercise* during work; adaptation of man to machines and vice versa; for elucidating the efficacy of different ways to influence the consumer (advertisement); for training mental functions in vocational schooling and so on. In capitalist countries, P. actively helped to improve their system of exploitation and social suppression of the working people. In the USSR, P. developed considerably in the 1920s and early 1930s. Characteristically, in research work, its attention was switched over from vocational selection mainly to improvement of polytechnical and vocational training methods, organisation of the labour process, forming of skills and habits, and measures against traumatism and accidents. Outside the USSR, the concept of P. is now generally identified with the notion "applied psychology", and includes various branches of psychology of labour (industrial and *engineering psychology*), *military psychology*, psychology of commerce, and so on.

Psychotherapy, comprehensive verbal and non-verbal remedial effect on human *emotions*, *judgements* and *self-consciousness* in numerous mental, nervous, and psychosomatic diseases. Psychiatrists conventionally distinguish clinic-oriented P., aimed mainly at alleviating or eliminating the symptoms present, and personality-oriented P., aimed at helping the patient change his attitudes to his social environment and his own personality. Methods of clinical P. include: *hypnosis*, *autogenic training*, *suggestion* and *self-suggestion*, and rational therapy. Personality-oriented (individual and group) P. widely uses different ways for analysing the patient's conflicting emotions. In individual P., the decisive factor of remedial efficacy is the psycotherapeutic contact between physician and patient, one based on mutual respect and confidence, and the physician's ability to understand and penetrate into another person's feelings (see *Empathy*). Labour therapy, group psychotherapy, and family psychotherapy, which all help enhance the patient's competence in *interpersonal relations* and improve his ability for self-knowledge and self-control, are widely used as methods for producing an activating therapeutic effect.

Psychotherapy, Group, use of regularities characteristic of *interpersonal interaction* in a *group* and aimed at treating patients (see *Psychotherapy*) so as to cure them physically and mentally. P.,G. elements may be traced from many centuries ago. P.,G. as a branch of psychology originated in 1904-1905 in Russia and the United States. In the USSR, P.,G. is developing within the framework of its clinical application in treating neuroses (see *Neuroses, Clinical*), alcoholism, and a

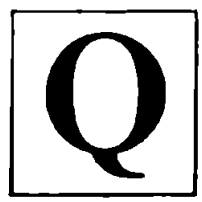
number of somatic (bodily) diseases. A psychotherapist would explain to a group of specially selected patients the essence of their pathology, substantiate his forecasts for their recovery, and instruct them in *autogenic training* and *relaxation*. P.,G. may also be used to teach patients to interpret the symptoms and specifics of their own behaviour, etc. Besides, P.,G. envisages organisation of psychological training designed to improve *communication* (1) techniques. Depending on the nature of the subject of psychotherapy, it is divided into: family psychotherapy, which envisages simultaneous work with parents, children and relations; P.,G. in *joint activities* and in various psychohygienic clubs; and game psychotherapy. The main indication to P.,G. is the presence of neuroses with upset social ties (family and professional) and difficulties in communication and *social adjustment* (see *Adjustment, Social*), and with initial stages of alcoholism and psychosomatic diseases. P.,G. of mental diseases is necessary to rehabilitate patients, i.e. to restore their ability to work. In this case, P.,G. is combined with labour therapy, with measures designed to keep the patients busy, and with promoting their spontaneous activity and self-government in groups. In Western Europe and the USA, P.,G. is theoretically based on various trends of *group dynamics* (Carl Rogers, Jacob Moreno, and others). In the USSR, P.,G. is based on Marxist *social psychology*, which regards the psychotherapeutic group as a multi-level structure of *interpersonal relations* conditioned by the substance of *joint activities* and determined by the maxim "The Health of Each is the Wealth of All".

Psychotoxicology, a branch of *medical psychology* that studies the neurochemical mechanisms, manifestations and methods of treating mental disorders caused by chemical agents called psychotomimetics or hallucinogens (deliside, mescaline, psylocytin, etc.). Such agents have a highly pronounced, selectively damaging effect on the *brain*, and, even in exceedingly small doses (millionths of a gramme), cause mental disorders. The latter give rise to colourful *hallucinations*; to disturbances in memory, attention, thinking, and emotions; and to delirious behaviour (see *Raving*), general psychomotor excitation, and so on (see *Psychosis*). NATO plans envisage the use of such agents as combat poison substances which disable enemy soldiers temporarily. At the same time, NATO spreads the myth that such weapons are unprecedentedly "humane" since they keep people alive. There were many cases when people who were given psychotomimetics in keeping with CIA military programmes such as Artichoke, and MK-ultra, or had used them as narcotics, had either committed suicide or were disabled for life.

Psychotropic Agents, chemical agents and natural products which are selectively active in relation to normal and disturbed psychic activity (see *Psychopharmacology*). There are

different classifications of P.A. depending on their chemical structure, pharmacological dynamics, clinical effect, etc. Depending on the latter, P.A. are most commonly classified into psycholeptics, i.e. substances which suppress and tranquilise the central nervous systems (e.g. aminasine, haloperidol, seduxen, etc.); psychoanaleptics, i.e. stimulators of activity, mood and work efficiency (e.g. phenamine, caffeine, sidnocarb, etc.); and psychodisleptics, i.e. substances which disorganise brain activity, (e.g. lysergic acid diethylamide, benactisine, etc.). Recently, new classes of P.A. have appeared which produce a highly differentiated effect on human mental functions, behaviour, memory and efficiency (e.g. neuropeptides, nootropes, psychoenergisers, etc.).

Public Opinion, the attitude of social *groups* towards phenomena or problems of social life affecting common interests, expressed in the form of judgements, ideas and concepts. P.O. results from an awareness of pressing social problems and shows in a comparison and, occasionally, also in collisions of various views and stances on a given issue, in approval of and support for or, conversely, in rejection and condemnation of certain actions, deeds or line of conduct. The subjects of P.O. may be large social groups, i.e. classes, nations and peoples. The highest form of P.O. is the opinion of the whole people, i.e. national consensus on issues of common interest. P.O. is formed under the influence of mass media, though it may also emerge spontaneously under the influence of concrete circumstances and situations. In a society with antagonistic classes, P.O. is under strong pressure from all the mass media concentrated in the hands of a dominant class. In a socialist society, P.O. becomes a reliable means for expressing the frame of mind of the broad masses on urgent issues of social life, and an effective instrument for the implementing social policies of the Communist and workers' parties.



Questionnaire, a method of collecting primary sociological and socio-psychological information through *verbal communication*. A Q. is a list of questions, each logically connected with the central *task* of the research. Compilation of a Q., which is essentially a translation of the principal hypotheses into the language of questions, is a complex and painstaking procedure. A Q. serves to ensure the retrieval of information which is accurate in relation to the questioned person and is relevant to the problem. Composition of a scientifically reliable Q. is, as a rule, a collective task. The first stage in this process is definition of a Q.'s contents. It may be in the form of an array of questions on the facts pertaining to the life and work of the questioned person (his education, social status, activities relating to the

past and the present, etc.) or on his *motives*, evaluations, attitudes. If information on the intensity of opinion is also required, an appropriate *rating scale* is included in the Q. The second stage in the production of a questionnaire is selection of the right type of questions. They may be open questions, which allow the questioned person to fashion the form and content of his reply in accordance with his own wishes, or "closed" questions, which require a "Yes" or "No" answer. Depending on the function, questions may be basic or leading, varifying or clarifying, etc. The type of the question may influence the degree of fulness and truthfulness of the answer. As for the working of questions, sentences must be short, clear, simple, accurate, and unequivocal. Typical errors are: hidden bias, excessive details, ambiguity, insufficient differentiation. Questions must fall in with the usual criteria of *reliability* and *validity*. The last stage is establishment of the number and order of the questions. The order may differ in different types of *survey*.

R

Rapport, (1) in the broad sense of the word, the term "R." is used in foreign literature to designate: (a) close *interpersonal relations* based on a high degree of community of thoughts, interests, and feelings; and (b) an amiable, friendly atmosphere resulting in a psychological experiment between the experimenter and subject; (2) in the narrow sense of the word, the term "R." signifies the emergent relationship between the hypnotist and the hypnotised during *hypnosis*. R. is characterised by a high degree of selectivity and perception, resulting from hypnosis-narrowed span of consciousness, specifically by hypersensitivity to the hypnotist's suggestions (mainly verbal), and by insensitivity to other influences. As a specific form of intrinsic dependency, expressing readiness to fulfil the hypnotist's suggestions, R. develops and stabilises with deepening of the hypnotic state.

Rating, a term designating a subjective assessment of some phenomenon by a preset scale. R. is used to initially classify socio-psychological objects by degree of salience of their common property (expert estimates). In social sciences, R. serves as a foundation for constructing a variety of *rating scales*, e.g. in assessing various aspects of work, personal popularity, prestige of specific occupations, and so on. The results obtained are normally in the form of ordinal scales (see *Scaling*).

Rating Scale, a technique that allows to classify the totality of objects under study by the prominence of their common property. The technique is based on subjective rating of a given property averaged for a group of experts. In psychology and sociology, R.S's were among the first to be used.

The simplest example is the usual school system of marks. A R.S. has from five to eleven intervals which may be designated by numbers or formulated verbally. The common view is that man's psychological possibilities do not allow him to classify objects over more than 11-13 positions. The possibility to construct a R.S. is based on the assumption that every expert can give quantitative assessments of objects under study. Paired comparison of objects and their assignment to categories are the principal techniques of *scaling*.

Rating Scaling, a method of constructing a *scale* to measure relationships between objects on the basis of expert estimates (*ratings*).

Raving (psychotic), false ideas and inferences that contradict reality, but which a pathologically convinced person persists in and which cannot be modified by reasoning. R. is a symptom of numerous mental disorders and may widely vary in form: e.g. R. of persecution, poisoning, jealosy, grandeur, etc. Two types of R. are distinguished. The first involves disruption of the cognitive sphere, when the patient supports his incorrect *judgement* by several subjective proofs combined in a "logical" system. The second type involves, in addition, a deranged sensory sphere, when the patient's R. is of imaginal nature, with predominant day-dreaming and fantasies. In some cases, R. is accompanied by affective manifestations of fear, unaccountable anxiety, sensation of vague danger, (e.g. paronoid R. of persecution, in which the patient interprets gestures and actions of people as a "conspiracy", "sign-giving", etc. and hence tries to flee or hide). R. should be distinguished from *supervalent ideas*, when a certain vital problem assumes excessively high (supervalent) significance in the mind of a mentally healthy person.

Reaction (in psychology), any response of an organism to changes in the external or internal medium, ranging from a biochemical R. of an individual cell to a *conditioned reflex*.

Reaction Time, the interval between the presentation of a *signal* (optical, acoustic, tactile, etc.) and the start of an instruction-conditioned response of the subject to that signal. The simplest motor *reaction* which establishes the occurrence of a certain signal ("detection rea sion") would normally last about 0.2 second. In case of more complex *tasks*, e.g. those involving one or several possible signals ("discrimination reaction") or choice of one or several forms of response ("choice reaction"), the R.T. would increase. By recording the R.T. researchers also perform a time study of problem solution processes, e.g. reasoning by analogy or understanding a sentence. The R.T. would depend on the type of the signal, nature of the problem, type of the response, direction of *attention*, *attitude* and the subject's *psychic state*, and also on his more stable individual characteristics. Time score is being increasingly

used in *general* and *engineering psychology*, in *neuropsychology*, *psycholinguistics*, and other mainly experimental branches of contemporary psychology. This is due to the absolute nature of the time *scale*, which excludes arbitrary transformations.

Reactive States, specific mental conditions (*psychogenic disorders*) whose clinical picture reflects the contents of the psychic trauma in question. The following R.S's are distinguished: (1) reactive *depressions*, when a psychic trauma causes the individual to be in depressed state, which manifests itself in inhibition and poor mimicry (the person's movements are slow, his answers are short and lack expression), the patient's thoughts are constantly concentrated on what has happened and he is perpetually engrossed in relevant pathological emotions; (2) affective shock reactions, normally arising in response to some mass calamities and manifested in a decrease of consciousness, panic, disorderly locomotor activity or, conversely, in complete inhibition (psychogenic stupor). In response to an illness or severe psychotrauma, persons with psychopathic constitution (see *Psychopathies*) may develop reactive *psychoses* in the form of reactive *raving*, oneiric states, etc.

Reactology, a trend in Soviet psychology that used to interpret it as the "science of behaviour" of living creatures, including man. R. was developed by the Soviet psychologist K. N. Kornilov. *Reaction* (all responses of organisms, including one-celled organisms), the central notion of R., was regarded as a universal property of all living creatures, as the response of the whole body, not just of a single organ, as a property qualified by mental characteristics (in higher representatives of the animal world). The task of R. was to study the velocity, intensity and form of the said reaction by means of various techniques. In the view of psychologists who sided with R., the transformation of the notion "*reflex*" and its expansion to the category "reaction" made it possible to "synthetise" subjective and objective psychology. Yet, this synthesis was artificial and formal, and R. was developed through eclectic combination with certain mechanistic and psychic energy ideas. As a result, there appeared in R. a contradiction between the correctly posed objectives of a new psychology and the meagre programme of its concrete substance. The essence of these contradictions was laid bare in psychological discussions of the early 1930s (the "reactological discussion"), which led to abandonment of reactological schemes and elimination of the concept of R. from psychology.

Reason and Intelligence (in philosophical and psychological tradition), two types of logical *thinking*. Being an element in the movement of thought towards truth, reason operates within the limits of ready knowledge by data gained from expeience to structure them in accordance with strictly established rules. This imparts reason

the nature of a "certain spiritual automation" (Spinoza) with inherently rigid orderliness in categorisation and judgement and tendency to simplify and schematise thought. This allows a corect classification of events and systematisation of knowledge. Reason ensures successful *adjustment* of the individual to habitual cognitive situations, especially in solving utilitarian problems. The limitation of reason is in its inflexibility and finality of judgements, inability to go beyond the subject-matter in question. In cases when human intellectual activity is limited by *operations* of reason, it becomes abstractedly formal. Intelligence produces deeper and more generalised knowledge. By grasping the meaning of the unity of opposites, it makes it possible to comprehend various aspects of the object in question in their dissimilarities, mutual transitions, and essential characteristics. Intelligence has the ability to analyse and generalise data of both sensory experience and one's own thoughts and, by overcoming their unilateral nature, to develop *notions* that reflect the dialectics of the objective world. The main difference between intelligence and reason, which implies operation with already known concepts, is in that the former goes beyond available knowledge to engender new notions. Intelligence is constructive, reflexive (see *Reflexion*), and oriented to higher social objectives. In the actual work of logical thought, reason and intelligence are intrinsically related as components of an integral process of cognition.

Recall, mental actions for searching, reproducing and retrieving necessary information from one's long-term memory (see *Memory, Long-Term*). R. is a voluntary form of *recollection*.

Recapitulation, a brief recurrence in *ontogenesis* of signs of philogenetic (historical) forms (see *Phylogenesis; Biogenetic law*).

Recency Effect, greater probability of remembering the last items of a series rather than the middle ones (see *Sequence Effect*). R.E. is studied within the context of *memory, learning* processes, and *social perception* investigations. R.E. was found to depend on the nature of the activity performed directly after a series of items were presented to a subject, rather than on the series length or item presentation rate: if the subject was to solve some problem related to signal detection, R.E. would persist; if, however, the task was a verbal one, e.g. an arithmetical problem, R.E. would be absent. R.E. is caused by extraction of information from short-term memory (see *Memory, Short-Term*). When R.E. is absent, that information is superposed by other similar information arriving in the short-term memory storage. Like the sequence effect, R.E. has no unambiguous explanation. In social psychology, R.E. (more familiar as the novelty effect) is studied in perception of people by one another: the last, i.e. newer information about a given person proves more signif-

icant with regard to a familiar individual, and original information more meaningful with regard to an unfamiliar one (see *Primacy Effect*).

Reception, transformation of environmental energy into a neural process of spreading *excitation*, which transmits to the neural centres information about the effects of corresponding *irritant*. The psychophysical dependence described by the *Weber-Fechner law* arises in the sensory (perceptual) systems already in the very first, receptory stage. Receptor function is controlled by the central *nervous system* via efferent fibres contained in sensory nerves (see *Brain*).

Receptor, a peripheral specialised part of an *analyser* that transforms only specific forms of energy into nervous *excitation*. R's vary widely in structure complexity and in adaptation to their own function. Depending on the energy of the corresponding stimulation, R's are classified into mechanoreceptors and chemoreceptors. Mechanoreceptors are present in the ear, vestibular apparatus, muscles, joints, skin, and visceral organs. Chemoreceptors transmit olfactory and gustatory sensibility; many of them are located in the brain, and react to changes in the chemical composition of the body's liquid medium. Visual R's are also essentially chemoreceptors. Depending on their place and function in the body, R's are classified into exteroceptors, interoceptors, and proprioceptors. Exteroceptors include distal R's, which obtain information at a certain distance from the stimulation source, e.g. olfactory, acoustic, visual, and gustatory R's.; interoceptors signal internal medium stimuli; and proprioceptors signal the state of the body's locomotor system. Some R's are anatomically interconnected and form receptory fields that can overlap.

Recipient, an individual who perceives a message addressed to him. An individual responding to the message is the *respondent*.

Recognition, identification of a perceived object as one already familiar in past experience (see *Identification*). R. is based on the comparison of available perception with mnemonic traces. R. differs in degree of certainty, distinctness, completeness and control. R. is voluntary when it is used to establish the efficacy of memorising or learning. The level of R. is always higher than that of reproduction, no matter what reproduction techniques are used. In the absence of a specific identification tasks, R. is voluntary and may be incomplete, indeterminate, and phantom. In the latter case, the subject would, for instance, feel he knows another person, whereas he has never met him before (see *Paramnesia*). Sometimes, an incomplete involuntary R. would engender the task of *recall* and turn into voluntary R.

Recollection, the act of retrieving from long-term memory (see *Memory, Long-Term*) of past images, mentally localised in time and space. R. may

be voluntary (*recall*) and involuntary, when images arise spontaneously in the mind (see *Perseverance*). In voluntary R. of some event, the subject consciously restores his attitude thereto, and this may be accompanied by *emotions* relevant to that event. Reconstruction of past experience is never literal. The degree to which R. and a past event do not coincide would depend on variations in *personality* development (on *attitudes*, *motives*, and *goals*), on the remoteness of the recalled event, and on its significance for the subject in question. The productivity of R. would depend on mnemonic means (see *Mnemonics*), and also on the conditions under which the episode was remembered.

Reductionism (in psychology), a conscious or unconscious methodological position, leading to reduction of one type of phenomena to a qualitatively different one (for instance, the psychic to the physiological, the biochemical or the biophysical). R. ignores or bluntly rejects the existence of psychological regularities and mechanisms as such, thus depriving psychology of the status of an independent science. Besides, R. interprets *psyche* as a certain side effect, an epiphenomenon (see *Epiphenomenalism*). R. disarms psychology in the face of tasks posed thereto by social practice, specifically those that involve the study of the fundamentals underlying the moulding of personality, of its consciousness and behaviour, and is incompatible with dialectico-materialistic methodology.

Referentiality, dependence of an individual upon other people in the form of selective attitudes thereto when there is a need to somehow assess or explain some object. As a personal trait, R. is a factor of *personalisation*. As a specific type of relations, R. manifests itself under a need constantly arising in a *group* to correlate the subject with objects that are essentially meaningful to the latter in connection with his activity. Such objects may be goals, tasks, norms and values of *joint activities*, objective and subjective difficulties arising therein (see *Barriers, Psychological*), the individual's personal qualities, as well as those of other participants in given activities (see *Group, Reference*). The object of reference relationships may be any group of which the subject in question is a member, or a group to which he refers himself without being its actual member. An actually non-existent individual (some literary hero, imaginary ideal worthy of imitation, ideal notion of the individual about himself, etc.) may also be a reference object. One should distinguish non-internalised R. relationships, when the reference object exists in reality as one that determines ("dictates") to the individual his behavioural norms, from internalised relationships, when the individual's behaviour is outwardly not conditioned by any object, and when all reference relationships are removed and "remoulded" by his consciousness and manifest themselves as his own subjective factors. However, in this situation, too, reference relationships would also take place, albeit

they would be more complex in form. For other group members, the fact of the individual's R. is established by referentometry (see *Referentometric Method*), a special experimental procedure.

Referentometric Method, a technique for revealing the *referentiality* of *group* members to each respective group member. R.M. includes two procedures. In the preliminary (auxiliary) one, a questionnaire is used to clarify the view (opinions, assessments, attitudes) of each group member towards a significant object, event, or individual. The second procedure is performed to reveal persons whose position, reflected in the questionnaire, is of greatest interest to other subjects. All this compels the subject to show high selectivity towards those group members whose position is most significant for him at the given moment. An important aspect of R.M. is the deeply motivated behaviour of the subject, preoccupied with the possibility to become acquainted with the view stated by a reference object regarding some significant object. Hence, R.M. allows to reveal the motives of interpersonal choices and preferences in a group. At the same time, the measure of an individual's referentiality (preference) is, in this case, determined indirectly, via the interest shown by the subject for the position of that individual regarding the significant object. Data obtained by R.M. are processed mathematically, and may be expressed graphically.

Reflection, a universal property of matter, essentially the ability of objects to represent with varying degree of adequacy the features, structural characteristics and relationships of other objects. The nature of R. depends on the organisation level of matter, as a result of which reflection qualitatively differs in inorganic and organic nature, in the animal and social domain, in more elementary and highly organised systems. In the organism, R. initially shows in *irritability*, due to external and internal *stimuli*, in the form of living matter's ability to respond to effects by selective *reaction* corresponding to the source's specifics. Such prepsychic R. in the course of development of organic matter transforms into *sentibility* as an ability to possess *sensations*, viz. primary psychic *images* of the environment that serve the purpose of orientation therein and regulation of *actions* adequate to its ecological uniqueness and the organism's needs. These simplest forms of R. serve as premises for the development of more complex forms, which include both sensory and mental images of reality that allow to represent its space-and-time and causal relationships to impart *behaviour* an increasingly adaptive (see *Adjustment*) and active character. R. becomes a leading factor in relation to the organism's direct reaction to a directly acting *irritant*. On the human level, owing to the fact that human *activity* is socially conditioned, R. becomes not only more active, but also qualitatively different. At this level, the selective and purposeful nature of R. is

determined by the *need* to transform nature, to effect *joint activities* involving the use of tools. In these processes, psychic R. comes out as the production of images not only of sensory, but also of logical *thinking* (notions, hypotheses, etc.) and creative fantasy, ones, which are objectified in products of culture (including symbolic systems like language). This radically changes the nature of R. causing ideal objects to appear. Adequacy of R. to its source assumes a certain similarity between the material characteristics of that source, the processing of nervous impulses in the brain, on the one hand, and that which is represented in the subject's psychic formations. Lenin made an exceptionally significant contribution to the teaching that cognition is R. of reality. Hence, the dialectical-materialist theory of R. is called the Leninist theory of R. It opposes various subjective and objective idealistic views on *consciousness* and serves as a methodological foundation for a scientific study of psychic reality.

Reflex, a natural response of an organism, by the *nervous system*, to an *irritant*. The reflex principle of *brain* activity was formulated by the French philosopher René Descartes, even though the term R. itself came to be used in science later, following the publication of the works of Thomas Willis, a British neurologist, and those of Georg Prochaska, a Czech physiologist. R's are commonly classifid into unconditioned and conditioned (see *Unconditioned Reflex, Conditioned Reflex*).

Reflexion, a process of individual's self-knowledge of his own mental acts and states. The notion R. originated in philosophy to signify the process of speculation by an individual about the events in his own consciousness. René Descartes identified R. with the individual's ability to concentrate on the content of his own thoughts by abstracting himself from everything bodily. John Locke distinguished *sensation* from R., interpreting the latter as a specific source of knowledge (inner experience as opposed to outer experience based on evidence provided by the *sense organs*). This interpretation of R. became the principal axiom of *introspective psychology*, which resulted in inadequate explanation of actual human ability for *self-account* of experienced facts of human consciousness, for self-analysis of one's own mental states. In *social psychology*, R. takes the form of awareness by the acting subject (either individual or collective) of how those mental states are actually perceived and assessed by other individuals or social units. R. is not merely knowledge or understanding by the subject of himself, but also finding out how others know and understand the "reflecting" person or group, their personal features, emotional responses and cognitive concepts. When the content of these ideas is the subject of *joint activities*, this results in *object-reflecting relationships*, a specific form of R. A complex R. process involves a minimum

of six positions characterising reciprocal reflection of subjects: the subject himself as he is in reality; the subject as he sees himself; the subject as he is seen by another person; and the same three positions as seen by another subject. Thus, R. is a process of double, mirrored reciprocal reflection by individuals of one another, the essence of this reflection being reproduction or reconstruction of one another's features. In Western social psychology, the tradition of R. research dates back to the works of Theodore Newcomb and Charles Cooley, and is related to experimental study of diads, pairs of individuals involved in interaction processes in artificial, laboratory situations. Soviet researchers (G. M. Andreyeva and others) note that in order to obtain a deeper understanding of R., one should examine it on more complex social *groups involved in significant joint activities, not on diads.*

Reflexology, a natural-science trend in psychology, developed chiefly in the USSR between 1900 and 1930 in connection with the studies of Vladimir Bekhterev. In following Ivan Sechenov, Bekhterev believed there is no process of thought that not would be shown by specific objective manifestations. In this connection, he studied all *reflexes* involving the *brain* ("correlative activity"). Representatives of R. sought to use exclusively objective methods as a "solid point of support" for scientific conclusions. They regarded mental activity in connection with neural processes and used facts from the physiology of higher nervous activity to explain that activity. Having originated in psychology, R. penetrated into pedagogy, psychiatry, sociology, and the study of art. Despite a number of empirical achievements, R. could not go beyond mechanistic interpretation of mental processes as by-products (see *Epiphenomenalism*) of behavioural acts. By the late 1920, R. became an object of increasingly strong criticism by Marxist psychologists, consequently many reflexologists realised that it was limited in concept and revised their views.

Regression Analysis (in psychology), a method of mathematical statistics that allows studying the dependence of the average magnitude upon the variation of another or several other magnitudes (in the latter case, psychologists apply multiple R.A.). The notion R.A. was introduced by Francis Galton, who established a definite correlation between the stature of parents and that of their adult children. He noticed that the children of very short parents were somewhat taller than the latter, while those of tall parents shorter, and he termed this regularity regression. R.A. is used chiefly in empiric psychological studies to assess the influence of, say, intellectual giftedness on good resuls in studies or of motives on behaviour; to construct psychological tests; and so on.

Regression of Behaviour, a form of individual defence response in *frustration*. In this case, the individual would substitute a meaningful complex task,

whose solution is difficult in a given *situation*, for an easier one. This would impoverish the repertory of behavioural acts performed by the individual, since the latter would use simpler or more habitual stereotypes (Paul Fraisse). Unlike substitution (Kurt Lewin), displacement, generalisation (Joseph Nuttin), and other forms of overcoming excess emotional tension characterised by stability of purposeful activity and search for new ways to actualise that activity, R. of B. is characterised by changes in motivations and needs.

Regressive (inner) Inhibition, see *Inhibition Proactive*.

Reinforcement (in teaching on higher nervous activity), unconditioned *irritant* causing a biologically meaningful reaction which, on combining with its precursory indifferent *stimulus*, develops a classical *conditioned reflex*. R. that harms the body (e.g. an electric shock) is termed negative (punishment). R. in the form of food is called positive (reward). At instrument training (to develop some locomotor reaction), the function of negative R. may be fulfilled by cancellation of a reward, while cancellation of punishment may turn into a positive R.

Relaxation, a state of quiescence arising in an individual following the removal of tension after intense *emotional experience* or physical effort. R. may be involuntary (when going to sleep) and voluntary, when a person takes a quiet posture, imagines states normally corresponding to quiescence, or relaxes muscles involved in various types of activity (see *Autogenic Training*). An effective method for teaching R. would be to establish a feedback by means of devices which display the level of bioelectrical activity to make it accessible to perception by the subject. R. is an auxiliary technique for athlete training, autogenic training, logopedics, and so on.

Reliability of a Test, a criterion of test quality (see *Testing*) relating to accuracy of psychological measurements. The higher the R. of T., the relatively more free it would be of *measurement* errors. Some regard R. of T. as stability of results in repeated testing. Others regard it as a manifestation of the degree of equivalence of two (parallel) tests similar in form and purpose. The definition of R. of T. may also be connected with the notion of the test's internal consistency. This is manifest in the separation of a test into parts with subsequent comparison of the results. R. of T. is also determined by the methods of *dispersion* and *factor analysis*.

Reminiscence (in psychology), fuller and more accurate recall of information retained in the memory as compared with that initially retained (memorised). R. may be observed in *memorising* of any *verbal* and visual material, and also in securing sensory-motor habits. R. manifests itself particularly often in work with large volumes of logically or objectively associated information affecting

a person emotionally. R. is more pronounced in childhood. A number of hypotheses have been suggested to explain R. According to one of them, *tiredness* during memorising of some material leads to impairment of its direct recall. Delay would permit to restore optimal functional state to thereby improve reproduction. Another hypothesis is based on the assumed existence of processes of concealed repetition of the material, one that continues after the obvious cessation of memorising, which leads to an improved reproduction following the delay. R. may also be explained by the fact that, following the delay, *interference* by information stored in the memory decreases. So far, none of these hypotheses can claim to exhaustively explain all cases of R.

Repetition, reproduction of mastered knowledge and actions designed to facilitate memorising. In general psychology, R. is regarded primarily in connection with *memory* research. R. is studied as a means for establishing new semantic links, revealing new correlations in an object, and effecting various methods of an individual's activity. R. is also designed to improve actions within different dimensions. Specially selected exercises and R. of some action in changing conditions allow R. to become generalised and conscious. Frequent R. under similar conditions leads to *automatism*.

Representations, *images* of objects, scenes and events that arise on the basis of their *recollection* or productive *imagination*. Unlike *perceptions*, R. may be generalised. Whereas perceptions relate only to the present, R. belong to the past and possible future. R. differ from perceptions in that they are considerably less clear. Nevertheless, their sensuous nature allows to classify them by modality (visual, acoustic, olfactory, tactile, and other R. Reliance on the R. of well-familiar scenes or places serves as a most effective mnemonic technique (see *Mnemonics*). Transformation of R. play an important role in solving mental problems, especially those which require new "vision" of the situation. In characterising the dialectical relations of R. and thought, Lenin wrote: "Is sensuous representation *closer* to reality than thought? Both yes and no. Sensuous representation cannot apprehend movement *as a whole*, it cannot, for example, apprehend movement with a speed of 300,000 km per second, but *thought* does and must apprehend it." (V. I. Lenin, *Collected Works*, Vol. 38, p. 227).

Repression, a form of "psychological defence" (see *Defence, Psychological*) which is a process whereby an individual "expels" from his consciousness thoughts, *recollections*, and *emotional* experience unacceptable to him, and transfers them to the sphere of *the unconscious*. Nonetheless R. continues to influence his behaviour, which is felt in the form of *anxiety*, *fear*, etc. The term "R." was introduced by Sigmund Freud (see *Psychoanalysis*; *Freudianism*).

Reproduction, a *mental action* accessible to observation; one that involves restoration and reconstruction of the actualised content in certain sign form (see *Actualisation*). Unlike *recognition*, R. is achieved without the repeated *perception* of a *stimulus* and may show in both voluntary and involuntary forms. Voluntary R. is induced by a reproductive *task* posed either by the subject himself, or by other people. Like recognition, R. is used as a technique for determining the efficacy of *memorising*. The number of R. errors decreases when R. is trained and accompanied by high *motivation*. R. efficiency depends on the method used: the more the R. situation corresponds to the memorisation situation, the better is R. Involuntary R. is observed in situations lacking intentionally set R. tasks, and occurs under the influence of ideas, thoughts and feelings evoked either by perception of a given object or situation, or by *activities* performed at a given moment (reading a book, watching a motion picture, etc.).

Research Programme of a Scientific Collective (socio-psychological aspect), a basic concept in socio-psychological study of a research collective (see *Collective, Scientific; Programme-role Theory of a Scientific Collective*). R.P. of S.C. involves a system of tasks to be solved by a scientific collective, and also methods to be used to this end, and consists of three aspects, viz., object-logical, scientific-social, and personal-psychological. R.P. of S.C. develops in an objective research situation arising in the course of development of science and in connection with society's needs. It includes the following concrete features: pre-planned future result of research; heuristic techniques for attaining that result; the sequence of using those techniques; and description of available, reserve, permissible and prohibited ways for achieving the goal. An accepted R.P. of S.C. makes it possible to organise the work of researchers and control group processes in the collective, orienting it to attaining the goals of the programme. The question of forming research programmes is a central issue for the social psychology of a research collective and for scientific research in general. The cohesiveness and efficiency of a research collective would depend on the quality of R.P. of S.C. R.P. of S.C. is a major requisite for developing intracollective relations by ensuring actual "programme-oriented" unity of the research collective.

Resoluteness, ability to independently take and steadfastly implement responsible decisions. R. particularly manifests itself in complex situations, when an act entails certain *risk* and the need to choose from several options. R. also signifies the ability to boldly take responsibility for the decision made, to perform timely actions, and to quickly execute that decision. Resolute actions would be morally justified depending on their social import.

Respondent, the subject of a socio-psychological study who is asked

questions. Depending on the nature of the study, R. appears as the testee, client, informant, patient, or simply partner in a conversation.

Responsibility, control over a subject's activity from the viewpoint of accepted norms and rules exercised in many forms. External forms of control, which ensure the subject's R. (accounts, punishment, etc.) for the results of his activity, are distinguished from internal forms of self-control, (e.g. sense of R., sense of duty). Personal R. before society is characterised by conscious obeyance to moral principles and legal norms that express some social need. As a personal trait, R. forms in the course of *joint activities* as a result of *interiorisation* of social *values*, norms, and regulations. Works by Soviet psychologists emphasise that the *level of group development* and *group cohesion*, the affinity of *value orientations* and emotional *identification* play an important role in causing a person to take R. for success or failure in joint activities. Soviet psychologists also claim that it is possible to exert a purposeful psycho-pedagogical influence on the forming in members of work collectives of self-critical and adequate assessments of the degree of their personal R. for the outcome of their common work.

Retention, a *memory* phase characterising long-term storage of perceived information in a hidden state. R. may be assessed only by observing other mnemonic processes that presuppose R., such as *reproduction*, *recognition*, and repetition. The power of R. essentially depends on the organisation of mnemonic means (see *Mnemonics*) and on measures that prevent *forgetting* (see *Memorising*; *Repetition*). R. may be active and passive. In active R., the retained data is subjected to inner transformations, ranging from simple cyclic repetition to inclusion in new semantic associations, which sharply increase the likelihood of subsequent reproduction. In passive R. researchers fail to reveal such active transformations.

Rigidity (in psychology), difficulty (up to total inability) to change the programme of *activity* charted by the *subject* in conditions that objectively require its restructuring. Psychologists distinguish cognitive, affective and motivational R. Cognitive R. manifests itself in a difficulty to restructure *perception* and *ideas* in a changed situation. Affective R. shows in inertness of affective (emotional) responses to changing objects of *emotions*. Motivational R. is seen in stiff restructuring of the system of *motives* in circumstances that require the subject to be flexible and change his *behaviour*. The level of the subject's R. would depend on how his personal traits interact with the environment, including on the complexity of the task facing him, its attraction for him, the danger involved, the monotony of stimulation, etc.

Risk, a situational characteristic of *activity* involving an indeterminate out-

come and possible unfavourable consequences in case of failure. In psychology, the following three basic correlated definitions correspond to the term "R.": (1) the measure of anticipated failure determined by combined probability of failure and degree of possible unfavourable consequences; (2) an action which somehow threatens the individual with failure (loss, injury, damage). Experimentally, psychologists distinguish motivated R. reckoned on situational advantages in some field of activity, and unmotivated R. (see *Activeness*). Besides, proceeding from the correlation between the anticipated gain and loss in implementing a given action, distinction should be made between justified and unjustified R.; (3) a choice between two possible ways of action, one less attractive but more reliable, and the other more attractive but less reliable (with problematic outcome involving possible unfavourable consequences). In this case psychologists traditionally distinguish two classes of situations, in which (a) success and failure are assessed using a specific achievement scale (situation of the "*level of aspirations*" type; (b) failure entails punishment (physical threat, pain, or social sanctions). There is an important distinction between situations in which the outcome would depend on chance (chance situations) and those in which it would depend on the individual's *abilities* (situations of *skill*). It has been revealed that, other conditions being equal, people show a much higher R. level in situations involving skill, rather than chance, i.e. when a person believes something depends essentially on himself. In psychology, the notion "R." manifests itself chiefly in acceptance of R., i.e. when the individual prefers a hazardous option to a safe one. Researchers show interest for shifts towards higher or lower R. levels in group discussions of some activity (see *Risky Shift*).

Risky Shift, increasingly risky group and individual decisions following a group discussion as compared to those initially taken by members of the same group (see *Group Decision-Making*; *Group Polarisation*). R.S. was repeatedly demonstrated in various experimental situations. There are three types of experimental procedures for examining R.S.: (1) comparison of initial individual decisions with coordinated group decision; (2) comparison of initial individual decisions with individual decisions after a coordinated group decision has been taken; (3) comparison of initial individual decisions following a group discussion, without compulsory coordination with post-discussion individual decisions. Several hypotheses have been suggested to explain R.S. The most popular one holds that each group member revises his decision in the course of discussion so as to bring it nearer to the group norm.

Role (in social psychology), a social function of *personality*; human behaviour corresponding to accepted norms, depending on people's status or position in society and in a given system of *interpersonal relations*. The notion

"R." was introduced into social psychology by George Mead (see *Interactionism*). Performing a R. by a person has a specific personal tinge which depends primarily on his knowledge and ability to be in that R., on its importance to him, and on his desire to meet the expectations of people surrounding him. The range and number of R's would depend on the multiformity of social group, types of activities and relationships involving the individual, and his needs and interests. Distinction should be made between social R's determined by the individual's status in a given system of objective social relationships (vocational, socio-demographic, and other R's) and interpersonal R's depending on the individual's status within a given system of interpersonal relations (leader, outcast, etc.). Psychologists also distinguish active R's, performed at a given moment, from latent R's that are not observable in a given situation. Besides, they distinguish institutionalised (official, conventional) R's connected with formal requirements of some organisation of which the individual in question is a member, from spontaneous R's connected with spontaneously arising relationships and forms of activity. Western sociology and psychology largely use various individual R. theories whose general methodological shortcoming is that they ignore objective historical and social conditions which in the final account determine social demands and expectations involved in R. behaviour. In those theories, the individual appears as a set of odd role masks which determine his outward behaviour, irrespective of his inner world, and ignore the uniqueness of personality, its active nature and integrity.

Rumours, a specific type of interpersonal *communication* (2), in the course of which a story, to some extent reflecting certain truthful and untruthful events, becomes familiar to a large number of different people. In addition to the given event, R. also reflect *public opinion* and *mood*, the more common social *stereotypes* and *attitudes* of the audience; and the informational situation in the region. R. are often the source of false, distorted information. They are commonly classified by two parameters: (1) expressiveness, i. e. emotional states that find expression in the R. content and corresponding types of emotional responses, such as desired R., scarecrow R., and aggressive R.; (2) informativeness, i. e. the degree of authenticity of the story, involving R. which range from totally false to relatively truthful ones. The main factor facilitating R. circulation caused by unsatisfied interest is an information vacuum filled either spontaneously or through the efforts of hostile propaganda. Knowledge of the causes and principles underlying the spread of R. helps organise informational policy so as to reduce to a minimum the likelihood of R. and, in case they do arise, to effectively counteract them.

S

Sanguine Person, an individual possessing one of the four basic *temperaments* and characterised by high mental *activeness*, energy, *work capacity*, agility, diverse and abundant mimicry, and quick speech. S. P. seeks frequent changes of impressions, readily responds to all events, and is a good mixer. S. P. is characterised by quickly developing and changing emotions; also, he gets over his failures relatively easily and quickly. The famed Russian physiologist Ivan Pavlov believed that, in S. P., excitative and inhibitory processes are quite intense, balanced, and mobile. Under unfavourable conditions and negative educational influences, mobility in S. P. may result in lack of concentration, unjustified haste, and superficiality.

Scale, an instrument for measuring permanent properties of an object, consisting of a numerical system in which relations between various properties of objects are expressed by the properties of numerical series. In psychology and sociology, various S's are used to study characteristics of socio-psychological phenomena. Initially, four types of numerical systems were distinguished to determine four respective levels (or scales) of measurement, namely, the nominal S., the ordinal S., the interval S., and the proportional S. These are distinguished basing on mathematical transformations allowed by each S. The difference in the measurement levels of some quality may be illustrated by the following simple example. If people were to be divided solely into those satisfied and dissatisfied with their work, one would obtain a nominal S. of job satisfaction. If one can also establish the magnitude of satisfaction, one would construct an ordinal S. Again, if one establishes the extent to which, and by how many times, some people are more satisfied than others, one could obtain interval and proportional S's of job satisfaction. S's are distinguished not only by their mathematical properties, but also by the methods used in collecting data. Each S. uses strictly specified methods of data analysis. Depending on the type of problems to be solved by *scaling*, one would construct either *rating scales* or *attitude scales*. In sociological and psychological research, each S. (irrespective of the measurement level) has a special name associated with the property of an object under study.

Scaling, a method for simulating real processes by means of numerical systems. In social sciences, e. g. anthropology, sociology, and psychology S. is a major method of mathematical analysis of a given phenomenon, and also a way to organise empirical data obtained through *observation*, study of documents, questionnaires, *experiments*, and *testing*. Most social and psychological objects cannot be measured with regard to exact place and time, and, consequently, cannot be measured directly. This gives rise to the question concerning the specifics

of a numerical system that could correlate with such empirical data. In effect, various S. methods represents special techniques for transforming qualitative characteristics into a given quantitative variable. The general S. process consists in constructing a *scale* in accordance with certain rules, and involves two stages. At the initial stage of data gathering, whose methods would essentially affect the resultant type of socio-psychological information, one would create an empirical system involving the objects under study and specify their interrelations. At the subsequent stage of data analysis, upon whose methods the volume of information would depend, the investigator would construct a numerical system simulating the relationships of the empirical system of objects; occasionally, this stage is also called the selection and implementation of the S. method. S. methods are used to solve two types of problems: (a) quantitative representation of objects in their totality using their averaged group score; and (b) quantitative representation of the inner qualities of individuals by establishing their attitude to some socio-psychological phenomenon. In the first case, this is done by means of *rating scales*, and in the second—*attitude scales*.

School, Scientific, in psychology, a form of organisation of joint scientific activities which unite the processes of cognition and transmission of accumulated knowledge. A S., S. implies: (1) a research and educational school that trains future scientists and scholars; (2) a research collective, a group of scientists who jointly elaborate under the supervision of a leader (head of school) the research programme he has devised; (3) orientation in science arising on the basis of a definite tradition encompassing numerous scientists and research groups. A S.,S. has played an important role in developing psychology from ancient times, when psychological knowledge developed within philosophical and natural-science doctrines (schools of the Ancient Orient, for example, and also the Ancient Greek schools of Pythagoras, Hippocrates, Socrates, and Plato, and those of the Stoics, Skeptics, Sophists, etc.). The trend of development was from schools that stored non-personified knowledge, like in the Ancient Orient, to schools which were prototypes of research groups, like Aristotle's school. In medieval, usually scholastic schools, development of psychological knowledge was chiefly reproductive, and sometimes also reactionary. The role of a S., S. significantly grew in importance in modern times, owing to rapid scientific progress and to the fact that it became a profession, and that scientific activity was no longer individual, but collective. S., S. became the main organisation in which psychology transformed from a branch of philosophical knowledge into an independent discipline. Wilhelm Wundt's school, which was both scientific and educational in nature, played an

important role in this. In fact, it trained the first generation of researchers who subsequently set up laboratories for experimental psychological research in various countries. Having rejected the eclectic nature of Wundt's conception, most of these researchers (Oswald Külpe, Stanley Hall, James Cattell, Vladimir Bekhterev, Hugo Münsterberg, and others), advanced new research programmes and created their own S. S. At the same time, Edward Titchener in the USA (see *Structural Psychology*) and Georgi Chelpanov in Russia continued to follow Wundt's orientation. Chelpanov organised a big research and educational school for teaching experimental methods to young scientists (Pavel Blonsky, Konstantin Kornilov, Sergei Kravkov, Nikolai Rybnikov, Pyotr Shevaryov, and others), who subsequently criticised the subjective method (see *Introspection*) and adopted the Marxist approach to consciousness and significantly contributed to the development of Soviet psychology. The development of psychology in the 20th century is connected with specifically oriented schools which determined the structure of present-day psychology, for example, structuralism (see *Structural Psychology*), functionalism (see *Functional Psychology*), *behaviourism*, *neobehaviourism*, Gestaltism (see *Gestalt Psychology*), *Freudianism*, and *Neo-Freudianism*. In Soviet psychology, whose common philosophical foundation is dialectical and historical materialism, an important role belongs to the schools of Mikhail Basov, Lev Vygotsky, Sergei Rubinstein, Alexei N. Leontyev, Alexander Luria, Boris Ananyev, Boris Teplov, Dmitri Uznadze, and others.

Second Signalling System, see *Signalling Systems*.

Self, the result of man's awareness of himself as a separate object in the environment, enabling him to regard himself the *subject* of his physical and mental states, *actions* and processes, and emotionally experience his own integrity and identity with himself in relation to his past, present and future. S. forms in the course of *activities* and *communication* (1). By changing the surrounding world in the course of his object-related activity, and in interacting with other people, the subject separates his S. from the non-S. to emotionally experience his non-identity with other objects. S. is evaluated by the subject in the *Self concept* to form the nucleus of human personality.

Self-account, see *Self-Observation*.

Self-actualisation, human desire to maximally reveal and develop one's personal potentials. In some trends of contemporary Western psychology, S. is assigned the role of the principal motivating factor in opposition to *behaviourism* and *Freudianism*, which regard personal behaviour to be propelled by biological forces and allegedly designed to discharge the tension these forces create and to adapt the

and *self-control* (systematic fixation of one's state and behaviour so as to prevent undesirable consequences).

Self-observation, observation by an individual of the inner side of his own mental life, a process that permits him to fixate its manifestations (emotional experiences, thoughts, feelings, etc.). S. arises in the course of *communication* (1) with other people and assimilation of social experience and means for its comprehension. S. plays an important role in forming the individual's *self-awareness* and *self-control*. In modern psychology, the results of S. are not taken on trust; they are factors which require scientific explanation. The results of S. may be recorded in various documents, e.g. letters, autobiographies, *questionnaires*, etc. S. should not be confounded with the subjective method of introspection (see *Introspective Psychology*). In some cases, the result of S. is self-account, i.e. description by an individual of himself in a totality of his own mental and personal manifestations. Sometimes, self-account is characterised by systematic mistakes, the most important one being that, in giving self-account, a significant number of subjects are apt to present themselves in a maximally favourable light.

Self-perception, see *Perception, Interpersonal*.

Self-possession, man's ability to act in action-disorganising situations affecting the emotional sphere. S. is indicative of consciously volitional organisation of the mental processes that regulate such activity, a d also of the individual's emotional and social maturity.

Self-regulation, purposeful functioning of living systems with different levels of organisation and complexity. Mental S. is a level of regulation of the *activeness* of these systems, showing the specifics of the psychic means of reflecting and modelling reality, including the *reflexions* of the subject. Mental S. is achieved as a unity of its energy, dynamics, and semantic aspects. Despite its diverse manifestations, S. has the following structure: the individual's *goal* of voluntary activity, model of significant conditions of activity, programme of executive actions proper, system of success criteria, information on actually achieved results, estimate of conformity of actual results to success criteria, and decisions about the need and nature of activity corrections. S. is a closed regulation contour involving an informative process whose agents are various mental forms of the reflection of reality. Depending on the types and conditions of activity, S. may be actualised by various psychic means, e.g. sensory images, ideas, concepts, etc. The goal accepted by the individual does not unambiguously determine the conditions needed to devise a programme of actions; with similar models of meaningful conditions of activity, different methods may be used to attain the same result. The general regularities of S. are actualised in

individual forms which depend on concrete conditions, and also on neural activity characteristics, the individual's personal traits and habits, formed in the course of *education*.

Self-suggestion (autosuggestion), *suggestion* addressed to oneself, a process in which the subject and the object of the suggestive effect coincide. S. leads to a higher level of *self-regulation*, enabling the individual to evoke in himself various *sensations* and *perceptions*, and to control his *attention*, *memory*, and emotional and somatic reactions. Voluntary S. is achieved through verbal self-instructions or by mentally reproducing certain situations unambiguously associated with the required change in one's mental or physical state (see *Autogenic Training*). Effective voluntary S. is promoted by mental *relaxation* and powerful *imagination*. Involuntary S. is characterised by the individual's uncritical attitude towards his own ideas, concepts, and assessments; by the absence of doubt in their correctness and authenticity; and by decreased control functions of consciousness. This sometimes causes *rigidity* (lack of flexibility) of mental activity. S. may manifest itself in disturbed functioning of various body systems owing to subjective anticipation of a given disorder, and due to the belief that it will certainly occur, or has already occurred (see *Iatrogenic Illness*). An opposite phenomenon is observed in the *placebo effect*. S. may also be used as a method of self-control in psychotherapy, sport, and pedagogy.

Sensation, *reflection* of the properties of objects in the objective world, occurring when the latter directly affect the *receptors*. According to the dialectical-materialist theory of reflection, "sensation is indeed the direct connection between consciousness and the external world; it is the transformation of the energy of external excitation into the fact of consciousness" (V. I. Lenin, *Collected Works*, Vol. 14, p. 51). Within the framework of Ivan Sechenov's and Ivan Pavlov's reflex conception, studies were made to show that, in regard to its physiological mechanisms, S. is an integral *reflex* which combines, through linking input and output, the peripheral and central sections of the *analyser*. At present, the problems involved in S. are being subjected to intensive study in the *psychophysics* of sensory processes and various branches of physiology. The diversity of S's reflects the qualitative diversity of the surrounding world. In distinguishing the reflection of quality as the principal element of S., Lenin wrote: "The very first and most familiar to us is sensation, and *in it* there is inevitably also *quality*..." (V. I. Lenin, *Collected Works*, Vol. 38, p. 317). S's may be classified basing on a variety of principles. A widespread method is to distinguish S's by modality, when distinction is made between visual, auditional, tactile, and other S's. Within individual modalities, a more detailed classification is possible (e.g. into spatial and visual colour S's). To some extent, this classification

is made difficult by the existence of intermodal S's or *synaesthesias*. Charles Sherrington, a British physiologist, distinguished three main classes of S's: (1) exteroceptive, i.e. those occurring under the action of external irritants on receptors situated on the body surface; (2) proprioceptive (kinesthetic), which reflect the motion and relative position of body parts due to the work of receptors situated in the muscles, tendons, and articular bursae; and (3) interoceptive (organic), which signal by means of specialised receptors the occurrence of metabolic processes in the organism's internal medium. In turn, exteroceptive S's have two subclasses, namely, distal (visual and auditional) and proximal (tactile and gustatory). Olfactory S's occupy an intermediate position between these subclasses. Yet, this classification fails to take account of the certain dependence of the function of S's upon the morphological localisation of receptors. For instance, visual S's may fulfil an important proprioceptive function. According to concepts developed by Soviet psychologists, S. occurs in *phylogenesis* on the basis of elementary *irritability* as sensibility to irritants that have no direct ecological significance and thus reflects an objective relationship between biotic and abiotic environmental factors. Unlike animal S's, man's S's are conditioned by his practical *activities*, by the entire history of social development. Numerous facts indicating the possibility of restructuring sensibility under the influence of specific labour activity speak in favour of the historical approach to S. as a product of world history. The same may be said about the dependence of the *perception* of the individual properties of objects upon socially developed systems of sensory qualities, such as the system of phonemes in the vernacular, the scale of musical sounds, or the scale of basic hues in the spectrum.

Sensation Threshold, intensity of the *irritant* causing or changing a *sensation*. The minimal irritant intensity necessary to cause a sensation is called the lower absolute S. T. The irritant intensity at which sensation either disappears, or changes in quality, e.g. transforms into pain, like with increased sound volume or light brightness, is termed the upper absolute S.T. A minimal increment in irritant intensity accompanied by a barely perceptible sensation change is called differential S.T. Measurements of absolute and differential S.T's have now resulted in the idea that a more or less broad "threshold zone" exists, and that inside that zone the probability of a response would vary from 0 to 1. The values of all separated types of S.T. would change in the course of *adjustment* and be subject to the effects of many factors, ranging from spatial and temporal characteristics of irritation to individual features in the observer's functional state. S.T. is inversely proportional to the intensity of the corresponding form of *sensibility*.

Sense of Humour, in common language, man's ability to note and emotionally respond to the comic sides of events.

S. of H. is inseparably associated with the subjects's ability to reveal contradictions in surrounding reality, e.g. to note and, sometimes, exaggerate the contrast of positive and negative traits in a person, somebody's affectation of importance accompanied by contrasting behaviour, and so on. In this case, the subject maintains a friendly attitude towards the object of humour, whom he subjects to a kind of emotional criticism. S. of H. implies the presence in the subject of a positive ideal, without which it degenarates into a negative trait, e.g. vulgarity, cynicism, etc. One can judge about the presence or absence of S. of H. by how a person takes jokes, anecdotes, friendly jests, and caricatures, and by whether he sees the comic side of a situation and by whether he can laugh not only at others, but also when he himself is made fun of. Lack of or underdeveloped S. of H. is indicative of the individual's declined emotional level and insufficient intellectual development.

Sense Organs, nerve systems serving as receivers of *signals* that inform of changes in the subject's environment (exteroception) and body (interoception) (see *Sensation*). It is customary to distinguish five external sense faculties, viz. vision, hearing, smell, taste, and tactile sensitivity. In reality, there are many more senses (for instance, an effect on the skin alone causes sensations of pressure, pain, cold, heat, etc.). S.O. consist of *receptors*, nerve conductors, and nerve centres. Every S.O. produces only its inherent sensation (see *Specific Energies Doctrine*). The specialised S.O. of humans and higher animals have resulted from the evolution of simple and non-differentiated S.O. of lower animals. Throughout that evolution, S.O. and the effector (primarily the muscular-locomotor) system essentially corresponded: S.O. ensure the delivery of precisely the information needed for organising the activities of the effector system. The work of S.O. is included in the subject's *activity*; it provides the latter with the necessary information and, at the same time, is subordinate to that activity: from the abundance of signals affecting the subject, the S.O. distinguish those that are needed to carry on current activity. The selection of certain signals from a general flow depends on their significance for the subject (see *Personalised Meaning*) and on his expectations (see *Probability Forecasting*). This ensures active nature of *perception*.

Sensibilisation, a *irritant*-induced increase in the *sensibility* of neural centres. In case of sensory *irritants*, S. is usually concealed by the accompanying process of sensorial *adjustment*. The correlation of S. and adjustment may be estimated by parallel measurement of sensibility to electrical and sensorial irritants. For instance, when exposing an eye to light, one would see that decreased sensibility to light (adjustment) is accompanied by increased sensibility to electricity (S.). An inverse relationship would develop in the dark. The

direct method of measuring S. is stimulation by electricity of the *analyser* neural elements situated above the receptors.

Sensibility, (1) general ability for *sensation*. S. appears in *phylogenesis*, when living organisms begin to respond to environmental factors that act as signals in relation to stimuli with direct biological significance; (2) In *differential psychology* and *characterology*, S. is increased disposition to affective responses. (3) In *psychophysics*, S. is a magnitude inversely proportional to the *sensation threshold*. There are, correspondingly, absolute and differential S's. The classification of types of S. coincides with the existing classifications of sensations. For instance, we distinguish types of S. by the thoroughness degree of a sensory analysis. Depending on the nature of the stimulus, one may speak of S. to mechanical, optical, chemical, temperature and other stimuli. S. of an organism may be assessed not only by sensations, but also by changes in various psychophysiological processes. This generally results in slightly different indices. For example, visual S. determined by changed response in integral brain rhythms proves higher than S. estimated on the basis of the subject's oral account. In recent years, psychophysics has developed thanks to the use of new theoretical concepts, such as the theory of signal detection, more generalised definitions of S. which are not dependent on the concept of sensation threshold.

Sensitiveness, a human property manifesting itself in elevated *sensibility* of a given individual to events that involve him personally. This is usually accompanied by increased *worry*: fear of new situations, people, various tests, and so on. Sensitive people are timid, shy, and impressionable, and tend to experience durable emotions about past or future events; they also show an *inferiority complex*; tend to develop increased moral exactingness towards themselves and a low level of aspirations (see *Accentuation of Character*). With age, S. may smooth out, for instance, due to a newly developed ability to cope with situations that cause anxiety, an ability that develops in the course of education and self-education. S. may be caused by both organic factors (heredity, brain lesion, etc.) and social ones, e.g. emotional rejection in family. Maximally pronounced S. represents a form of *psychopathy*.

Sensory Deprivation, prolonged and more or less complete deprivation of man of sensory stimulation for experimental purposes. The subject is placed in a sound-proof and completely dark room, or in a bathtub filled with water (34.5°C) where he cannot move. This causes a strong need for sensations. Suggestibility increases, and concentration and normal trend of thought are impaired. Depressive states and *hallucinations* sometimes also develop. It is to be noted that very similar changes are observed in protracted social isolation; these cases have been described

by people who experienced shipwrecks, by polar explorers, etc.

Sensualism (in psychology), a theory which postulates that sensory impressions constitute the foundation of psychological activity. In the ancient world, representatives of several philosophical schools (the Cyrenaics, Epicureans and, in a more moderate form, the Stoics) adhered to this doctrine. In insisting that extra-sensory cognition is impossible, the Stoics suggested that the intellect be regarded a *tabula rasa*, on which experience imprints its characters. They also maintained that there is nothing in the intellect that would not be initially present in the senses. Later, these views were popularised by supporters of S. in the Renaissance and Modern Era (John Locke and Etienne Condillac) in their dispute with adherents of rationalism, who tried to prove that cognition contains a substance basically undeducible from *sensations*. Philosophically, S. is not a homogeneous trend, and involves long-time controversies between idealist and materialist views of sensation. The former deny that sensation is caused by external objects, and the latter interpret sensory impressions as the effect of external irritants on the sense organs. S. influenced the development of associative psychology (see *Associationism*), in which in line with philosophical differences, the association of elementary sensations that engender complex psychological products was understood to be either the property of the mind (George Berkeley, David Hume, James Mill, and John Stuart Mill), or a derivative of the system of material interaction of the body "machine" with the environment (David Hartley and Julien La Mettrie). S. had a strong influence on early experimental studies in psychology, since experimenters thought that their task was to reveal the primary sensory elements (sensations), which they would use to build the entire complex architectonics of mental life. The further development of *experimental psychology* showed that the real structure of human consciousness is much more complicated: that intellectual acts cannot be regarded as associations of sensations; that the intellect contains a substance unreducible to sensory images; and that S. is totally unable to explain the *motivation* of behaviour and the role of action *in building* these images. Dialectical materialism laid bare the theoretical limitations of S. caused by its contemplative nature and lack of understanding of the historical nature of human cognition and the qualitative uniqueness of thinking as the supreme form of reflection of reality and social practice.

Sentiments, a principal and relatively stable form of attitudinal response towards objects and phenomena. Unlike situational *emotions* and *affects*, which reflect the subjective meaning of things in concrete conditions, S. single out phenomena with a stable motivational (see *Motivation*) significance. In revealing to the individual the objects that meet his *needs*, and in prompting him to activity designed

to satisfy them, S. represent concrete subjective forms in which those needs exist. The forming of S. is a requisite for man's development as a personality. Knowledge of *motives*, ideals, and *norms* of behaviour would in itself be insufficient for a man to be guided thereby; only when associated with stable S. this knowledge would turn into real incentives to activity. Man's S. are socially and historically conditioned as man's personality itself, the latter changing in the course of social development. In *ontogenesis*, S. appear later than situational emotions; they form with the development of individual consciousness under the educational influence of the family, school, the arts, and other social institutions. The primary objects of S. are phenomena and conditions upon which the course of events, meaningful to the individual and, hence, perceived emotionally, would depend. Arising from a generalised emotional experience, S. become the leading factors in man's emotional sphere and, in their turn, start determining the dynamics and substance of situational emotions. For instance, depending on the circumstances, a S. of love for a cherished person gives rise to anxiety for him, sorrow in separation, joy at seeing him, anger when he fails to justify one's expectations, and so on. Such situational emotions specify the content of S. in relation to existing conditions and prompt the subject in question to act in line with his S. Occasionally, S. and concomitant emotions may cause controversial attitudes towards the object (see *Ambivalence of Sentiments*). As the personality is being moulded, S. become organised in a hierarchic system wherein some become the leading ones, while others remain potential, unrealised tendencies. The content of dominant S. is a major factor in *personality orientation*. The most common classification of S. singles out certain subtypes for the respective spheres of activity in which they are manifested. Higher S. comprising the whole thesaurus of man's emotional relationships to social reality constitute a separate group. Moral S. include everything that determines man's attitudes towards social institutions, the state, classes, political parties, other person, and himself. Cognitive activity engenders in man intellectual S. involving both the very process of acquisition of knowledge and its result. The highest among intellectual S. is the generalised S. of love for truth. Practical S. associated with activity, viz. labour, studies, and sports, hold an important place among higher S. which also include aesthetic S. implying conscious or unconscious (see *The Unconscious*) capacity to be guided by notions of beauty in perceiving the surrounding world. Intellectual, practical, and aesthetic S. arise in unity with moral S. and the latter amplify them. Depending on the degree to which the content of S. is objectively generalised, the latter are classified into concrete (for instance, S. towards a child or some work of art), generalised (S. towards children or music in general), and abstract (S. of justice or of tragedy). The absence of a

detailed classification of S. is due to their great variety and historical variability.

Sequence Effect, a phenomenon showing how end items of a series, i.e., those located at either extremity of a material, are remembered better then those in the middle. S.E. was established by the German psychologist Hermann Ebbinghaus and subsequently confirmed by many other psychologists. S.E. appears both in direct and delayed reproduction. According to the French psychologist Marcel Foucault, S.E. results from interaction of internal inhibition processes that simultaneously act in learning and in delaying the latter (see *Inhibition Proactive*; *Inhibition Retroactive*.) In contemporary investigations, S.E. is studied as the *primacy effect* and *recency effect*.

Set, Theory of, a general psychological system of ideas which distinguishes the principle of set (*attitude*) as the central explanatory notion. S.,T. was developed by the Soviet psychologist Dmitri Uznadze and his school (Alexander Prangishvili, Vladimir Norakidze, and others). The category of set was suggested by Uznadze to overcome the *postulate of immediacy*, the methodological premise in traditional psychology, primarily in the *introspective psychology* of consciousness and *behaviourism*. Having overcome the methodological limitations of these approaches, Uznadze developed the view that set is an "integral modification of the subject", his readiness to perceive future events, and to perform specifically directed actions being the foundation of his purposeful selective activity. Set arises in an "encounter" of two factors, viz. the *need* for and *situation* of its possible satisfaction, designed to determine the trend of any manifestation in the subject's psyche and behaviour. When impulsive behaviour encounters some obstacle, it is interrupted and replaced by a machanism of objectivation typical solely of human consciousness, due to which the individual distinguishes himself from the environment and starts regarding the world as something existing objectively and independently of himself. Sets regulate a wide range of conscious and unconscious forms of human mental activity. For experimental studies of set, a method of fixation was suggested, and its different varieties are applied in analysing the development of psyche in *phylogenesis* and *ontogenesis*; cognitive processes; *personality*; and *interpersonal relations*. Special attention is given to the study from S.,T. positions of unconscious mental phenomena, whose interpretation cardinally differs from that of *the unconscious* in Freud's *psychoanalysis*. A promising trend in S.,T. development is the theory of levels of mental activeness (Shota Nadirashvili). S.,T. is a concrete scientific methodology for various special branches of psychology (*medical, developmental, engineering, social*, etc.).

Shame, an *emotion* arising from

awareness by an individual of real or imaginary incompatibility of his actions or certain individual manifestations with the *norms* and moral requirements of a given society shared by himself. S. may be due to one's own behaviour or to manifestation of personal traits by other people, as a rule, either one's close relatives or friends (S. for another person). S. is experienced as dissatisfaction with oneself, as condemnation or accusation of oneself. The desire to avoid such experience is a powerful behavioural motive for self-perfection, acquisition of knowledge and skills, and development of *abilities*. Different people have different S. thresholds conditioned by their *value orientations*, personality orientations and sensitivity for other people's relevant opinions • and assessments. By focussing the subject's attention on his own actions and qualities, S. helps develop self-consciousness, *self-control*, and self-criticism, and is considered to be the most reflexive (see *Reflexion*) emotion. By enhancing the subject's sensitivity to other people's assessments, S. takes part in regulating *communication* (1) (to either facilitate or complicate interpersonal contacts). S. is a fully socially-conditioned emotion that forms in ontogenesis in the course of conscious assimilation of ethical norms and rules of behaviour in a given social system.

Sign, an object (phenomenon) representing another object, phenomena, process. The science of S.—semiotics—which emerged in the late 19th and early 20th centuries, is connected with the names of Charles Pierce, Charles Morris, Ferdinand de Saussure, Gottlob Frege, Rudolf Carnap and others, and is tridiitionally subdivided into pragmatics (concerned with the relation of S's to man), semantics (concerned with the relation of S's to meanings) and syntax (concerned with the relation of S's to S's at an abstract level). It is directly relevant to logic, linguistics, cultural analysis, sociology, etc. Psychological analysis of S. is customarily assigned to pragmatics. Psychologists study the S's of *communication* (1), above all the natural S's (as distinct from artificial ones—mathematic, astronomic, etc.), including language. They single out several types of S's. According to Ferdinand de Saussure, a Swiss linguist, S. is an entity with its own structure composed of the signifying and the signified, the link between which is established by society and does not depend on the "substance" and form of S. and the object. Different theories of psychology offer varying interpretations of S.: S. as a *stimulus* in the "stimulus-reaction" pattern among the behaviourists; S. as a symbol, a vehicle of unconscious drives in psychoanalysis; S. as a *signal*, a vehicle of social relationships in symbolic interactionism. S. plays a particularly great conceptual and functional role in *cognitive psychology* in connection with its initial computer metaphor, i.e. an analogy between the structure of man's psyche and informational-logical computers intended to receive.

store, process, retrieve and transmit S. information. The notion of S. in Soviet psychology plays an important role in the *cultural-historical theory* of the *mental development*.

Signal, a process or phenomenon (external or internal; of which an individual is aware or unaware) that carries a message about some event to orient living organism accordingly (see *Irritants*). In conformity with the nature of analysers and other perceptual systems, psychologists distinguish optical, acoustic, tactile, thermal, electro-magnetic, chemical, biorhythmical, and other signals. The concept of S. is widely used in *psychophysiology* and *neuropsychology* (see *Signalling Systems*); in *psychophysics* and in *engineering* and *general psychology* when studying perceptual (see *Perception*) processes; and in *social psychology* when studying *communication* (2) processes.

Signalling Systems—the first and the second signal systems (1st S.S. and 2nd S.S.)—ways for regulating the behaviour of living creatures in the environment, whose properties are perceived by the brain either in the form of *signals* or directly intercepted by the *sense organs* as *sensations* of colour, sound, odour, etc. (1st S.S.), or are represented in the sign system of a given language (2nd S.S.). The term was introduced by the Russian physiologist Ivan Pavlov to characterise distinctions between the signal activity of the animal and human brain, and to reveal specifically human types of higher nervous activity. In man, relative prevalence of the 1st S.S. results in an artistic type of personality, and the prevalence of the 2nd S.S.—in an intellectual type. The 2nd S.S. arises in the historical development of society as an "emergency addition" that introduces a new principle in the work of the central nervous system, since it allows reflecting the world in a general (conceptual) form in the processes of work and speech. The 2nd S.S. interacts with the 1st S.S. to form a qualitatively new entity. By orienting towards *speech*, Ivan Pavlov started to transform the signal concept into the *sign* notion, a meaningful unit of human intellectual activity (the word generalises, abstracts, etc.). This concept was further developed by Leon Orbeli, in whose theory signs were a form of vehicles of cultural meanings, encompassing, along with speech, other types of semiotic relations (musical sounds, drawings, expressive movements, and so on).

Significant Other, a human being who is an authority for the given subject of communication and activity (see *Referentiality*). The concept was introduced by the American researcher Harry Sullivan.

Situation, a system of external (in relation to the *subject*) conditions inducing and mediating his activity. The quality of "being external" in relation to the subject signifies: spatially, perceived external location with regard to the subject; temporally, antecedence

to the subject's action; and, functionally, independence from the subject of corresponding conditions at the moment of action. S. elements may also include the subject's own states at the preceding moment, if they condition his subsequent behaviour. Complete description of S. implies identification of requirements imposed upon the individual from outside, and/or worked out by the individual himself as initial requirements (see *Problem Situation*). Implementation of S. requirements creates premises for transforming or overcoming a given S. The subject can go beyond the bounds of a given S. (see *Activeness, Situationally Independent*), depending on the extent to which he (if the given S. is significant for him) starts developing and implementing new demands towards himself that would exceed the initial ones.

Skill, an *action* formed by *repetition* and characterised by a high degree of performance and performed more or less automatically. There are perceptive, intellectual, and motor S's. Perceptive S. is automatised sensual reflection of the properties and characteristics of a familiar object which has been repeatedly perceived earlier. Intellectual S. is an automatised technique or method for solving a problem encountered previously. Motor S. is an automatised action formed as a result of repeated transformations of the object. Motor S's include perceptive and intellectual S's and are regulated thereby through automatised reflection of the object and of the conditions and sequence in which an action aimed at transforming real objects is performed. Also to be distinguished are basic automatised S's formed without the persons's awareness, and secondary automatised S's formed when the person is aware of the action components involved. When necessary, secondary S's are more easily subjected to conscious control and more rapidly improved and restructured. S's are also characterised by varying degrees of generalisation: the wider the class of objects in relation to which a S. may be applied, the more generalised and labile it is. The skill-forming process involves determination of its components and such mastering of an operation that would permit to attain the best results through perfection and consolidation of intercomponent links, their automatisation and high level of readiness for the given action for subsequent reproduction. The following factors affect the formation of S's: (a) *motivation, ability to learn*, the process of learning, *exercising*, and *reinforcement*; (b) for understanding the content of an operation—the subject's level of development, presence of knowledge and *capilities*, method of explaining the operation's essence (direct communication, indirect guidance, etc.), and feedback; and (c) for mastering an operation—completeness of the comprehension of its essence, gradual nature of transition (magnitude of jumps) from one level of performance to another for specific indicators (automatisation, interiorisation, speed, etc.), and so on. Various combina-

S.P. studies made it possible to identify the social group as the subject of activity, and on this ground as the subject of perception (Galina Andreyeva, 1977). Eight S.P. variants were distinguished, viz., perception by group members of one another and members of another group; perception of oneself, one's own group, and an "out" group; perception by a group of its own member and a member of another group; perception by a given group of another group (or groups). Thus, the "group context" (affiliation to one's own or "out" group) was introduced into S.P. studies to account for the principle of dependency of interpersonal relations on group activities. This helped to start examining the specifics of perceptual processes during joint activities in groups with different development levels. These investigations concern the forming of norms and standards of S.P.; the structural typology of interpersonal and intergroup perception; the perception of an individual's *status* within a group; accuracy and adequateness of people's perception of one another; the regularities and effects of inter-group perception; and so on (see *Primacy Effect*; *Novelty Effect*; and *Halo Effect*).

Social Psychology, a branch of psychology which studies the laws governing men's *behaviour* and *activity* caused by the involvement of individuals in social *groups*, and also the psychological characteristics of such groups. For a long period, socio-psychological views were developed within the framework of various philosophical doctrines. Some S.P. elements developed in psychology and sociology, and also in anthropology, ethnography, criminology, and linguistics. Initial attempts to create independent socio-psychological concepts, namely, "peoples' psychology" (Moritz Lazarus, Heymann Steinthal, and Wilhelm Wundt), "mass psychology" (Gustave Le Bon), and the theory of "social instincts" (William McDougall), date back to the second half of the 19th century. The year 1908 is believed to have started S.P., for that was the time when the term first appeared in the titles of different works. After the First World War, a number of socio-psychological problems were studied in industry, army, propaganda, etc. in the United States and other capitalist countries. At the same time, general methodological principles were developed for organising S.P. as an experimental science. Yet, S.P. (primarily in the United States), in which laboratory experimentation played the leading role, put too much accent on the small group (see *Group, Small*), and this led to underestimation of the theoretical and ideological aspects of S.P., disregard of real social problems, and loss of the "social context". Works by Marx, Engels, and Lenin contain basic tenets of Marxist S.P. concerning the nature of social relations and the correlation of individual and social consciousness. The inclusion of these principles in actual investigation practice helped develop Soviet S.P., and this was largely due to successes in *general psychology* which allowed Soviet S.P. to rely on such dialectico-materialist

principles as that of unity of consciousness and activity, etc. Today, we can speak of the existence of a system of Marxist socio-psychological knowledge. As a science, S.P. involves the following basic areas: principles of human *communication* (1) and interaction (for instance, the role of communication within the system of social and *interpersonal relations*); psychological characteristics of social groups, both large (classes and nations) and small (for studying such phenomena as cohesion, leadership, group decision-making, etc.); the psychology of *personality* (which, among other things, studies social *attitudes*, *socialisation*, etc.); and practical applications of S.P. In Soviet S.P., all these problems are examined on the basis of the principle of activity (see *Activity Approach*). Socio-psychological phenomena are studied in real social groups united by joint activities, provided these activities condition the entire system of intragroup processes. This makes it possible to see each group as a unit within a totality of social relations, and to reveal the mechanisms of group development that transform a diffuse group (see *Group, Diffuse*) into a *collective*. S.P. based on such methodological principles can fulfil its main practical task, i.e. help optimise management of social processes in developed socialist society. The need to organise a psychological service in the Soviet Union, which could help solve applied S.P. problems in the economy, education, mass media, sport, everyday and family life, is also becoming increasingly urgent.

Social Psychotherapy, an anti-humane system of methods developed in capitalist countries to influence social *behaviour*. S.P. equalises crime, mental diseases, and actions against reactionary policies of bourgeois governments, regarding all these phenomena as the result of mental disorders. It views methods of *psychotherapy* as adequate ways of correcting all forms of deviations. A most striking example of S.P. is *modification of behaviour* practiced in the United States and Britain. Some American psychiatrists and psychologists believe that various forms of S.P., ranging from the use of psychopharmacological agents (see *Psychopharmacology*), *hypnosis* and electric shock to forced confinement and brainsurgery, should be compulsory and applied as government authorities see fit so as to ensure consensus in capitalist society.

Socialisation, a historically conditioned process and result of assimilation and active reproduction by an individual of social experience in *activity* and *communication* (1). S. may take place both during *education*, i.e. in purposeful formation of a given personality, and in the context of a spontaneous impact of various, sometimes opposite factors of social life on a developing personality. Education is the determining factor in S. In socialist society, education and S. are aimed at all-round development of an individual. S. implies multifacious learning by man of his social environment and assimilation of habits and skills for individ-

ual and collective work. It also involves socio-psychological mechanisms that serve to bring human culture within the reach of an individual. Corresponding processes and mechanisms have been studied most exhaustively in *developmental* and *pedagogic psychology*. In Western psychology, the problems of S. are chiefly studied within the framework of *psychoanalysis* and *interactionism*. Psychoanalysts understand S. as the entrance of an individual, who is allegedly a priori asocial or anti-social, into a social milieu and his *adjustment* to that milieu. Interactionists treat S. as the result of interpersonal interaction which leads to accord via mutually conforming behaviour (see *Conformity*). Soviet psychologists characterise S. as an increased sphere of activity and communication of an individual caused by learning and education, and as the process of moulding his personality, including his self-consciousness and an active social stand. Soviet psychology assigns a special role in S. to development of individual contacts with other people and to joint and socially useful human activities. In the course of S., the individual acquires not only new experience, but also the opportunity (and capability) to become a full-fledged personality and to influence other people.

Socialisation, Political, *socialisation* as political development of an individual. In Western psychology, the essentially common feature of various interpretations of S.P. is that they regard an individual as a passive object of ideological and political influences aimed at moulding individuals who perceive the political system of capitalist society in a docile and uncritical way. Soviet psychology regards individual's political development as a process of active assimilation by him of the ideological and political *values* and *norms* of society, and the forming of those values and norms into a conscious system of socio-political *attitudes* that determine his behaviour and attitude towards the existing socio-political system.

Sociogenesis (in psychology), the origin and development of *higher mental functions, personality*, and *interpersonal relations*, conditioned by the specifics of *socialisation* in different socio-economic formations. The regularities of S. are the subject-matter of historical psychology which studies the psychological features of cognition, perception, personality structure, assimilation of customs and rites in various epochs, etc. S. is also the subject-matter of *ethnopsychology*. S. was studied from the idealistic viewpoint by Wilhelm Wundt, who analysed the psychology of peoples by the method of studying the products of man's thinking embodied in various forms of its history. Nor did the study of S. by psychoanalysts (Sigmund Freud, Carl Jung, and Erich Fromm) and by the school of French sociologists (Émile Durkheim, Lucien Lévy-Bruhl, and others) allow to reveal its real mechanisms, since they were either described as those inherent in the development of individual mind, or

reduced to intellectual communication between people. In using a different methodology for studying S., Marxist-oriented psychology interprets it as a process caused by work activity within a specific socio-economic formation. This made it possible to reveal changes that occur in psyche during transition from *anthropogenesis* to S. (Boris Porshenev's "palaeopsychology"); the regularities of S. and higher mental functions in their general, historical development; and the structural specifics of consciousness in various socio-economic formations. The study of S. is a direct actualisation of the principle of historicism in modern psychology.

Sociogram, a special scheme that shows the pattern of *interpersonal relations* in a *group* revealed by special sociometric techniques (see *Sociometry*). S.'s have several versions. One is a target S., which represents several concentric circles (normally equal to three, four or maximal number of choices made by the group members), inside which, in accord with the number of obtained choices, the names of the group members are joined by arrows which indicate the direction and nature of the choices; this is done with the aid of conventional symbols. Another variant is a group S., which is a relatively arbitrary plane scheme showing groups of individuals who had mutually chosen each other and the associations between those groups. The distance between the groups corresponds to the nature of choices among their members. The third type is an individual S., in which a randomly or purposefully selected group member is depicted in the system of all his associations revealed during the investigation.

Sociometry, a trend in social psychology in the United States and Western Europe. The set of measurement procedures developed within the framework of S. is based on various techniques for studying social relationships within groups. As a theory, S. appeared in connection with the ideas of Jacob Moreno, who claimed that all problems of social relations could be solved by relocating people so that those who take mutual liking would be neighbours. Accordingly, he distinguished a macrostructure and microstructure. The former represents disposition of people in space in various forms of joint activities, and the second characterises their emotional and psychological relationships. Moreno claimed that the latter are allegedly caused by a certain unconscious innate force, "tele", which attracts people to each other. He thought that to attain "social harmony" it would be sufficient for people to make these structures balanced so they could settle according to their mutual likings. Moreno tried to apply his theory to social processes via a utopian "sociometric revolution". S. combined in itself the features of idealism and mechanicism and hence could not be a scientifically sound foundation for solving problems of *interpersonal relations*, let alone develop and perfect social relationships.

Socio-Psychological Competence, an individual's ability to effectively interact with people surrounding him in a system of *interpersonal relations*. S.-P.C. includes the ability to find one's bearings in social situations; to correctly define the personal features and emotional states of other people; and to select adequate means for treating those people and for actualising those means in the course of interaction. The ability to put himself in another person's place (see *Reflexion*; *Empathy*) plays a particularly important role. S.-P.C. develops while the individual learns how to communicate with and participate in other people's joint activities.

Socio-Psychological Training, a branch of applied *social psychology* that represents a set of group methods for developing skills for self-knowledge, *communication* (1) and interaction within a *group*. The basic means of S.-P.T. are group discussions and role games in various modifications and combinations (see *T-Group; Psychotherapy, Group*). S.-P.T. is applied to form and improve general communicative training of an individual (e.g. for persons experiencing trouble due to communicative barriers) and to develop specific communicative skills in people whose professions involve numerous contacts with other people (e.g. managers, teachers, medical personnel, sport coaches, etc.). West European and US psychologists exaggerate the role of S.-P.T., which they allege to be the basic way of individual perfection for radically changing society and a panacea for solving all social problems (see *Humanistic Psychology*). In the West, S.-P.T. is generally aimed exclusively at developing the individual, at realising his strictly personal needs, at forming intimate relationships with other people, irrespective of the activity that actually links them. The problem of fostering communication and interaction skills within a group can only be truly solved by analysing meaningful joint activities, rather than "free" communication outside those activities. In this connection, group work therapy, and the forms of group labour education which were theoretically substantiated by Anton Makarenko, Vassili Sukhomlinsky and other Soviet educators, are more promising than T-groups. To develop personality harmoniously, an individual must take active part in the activities of a *collective*. In developed socialist society, S.-P.T. is used among other psychological methods designed to improve man's individual properties in communication and collective activity.

Solution (in psychology), the forming of mental operations that reduce the initial uncertainty of *problem situation*. Solving is usually divided into stages of search, decision and realisation. The specification of S. would depend on the level of research (systemic, functional, personal, or vocational), field of research (cognitive, creative, operational, managerial), and the psychological mechanisms of S. (volitional, intellectual, emotional, probabilistic, etc.). In literature on *engi-*

neering psychology, the notion S. is sometimes identified with *decision-making*. Important tasks of psychology are discovery, quantitative assessment, analysis and optimisation of the psychological factors of problem solving so as to enhance the efficiency and quality of production.

Somnambulism, a form of complex outwardly purposeful, but unconscious behaviour in transition from sleep to hypnotic-like state (see *Hypnosis*). Its commonly used synonym, lunacy, originates from prescientific ideas about the effect of the Moon on man during sleep. As a rule, S. episodes start 1-1.5 hours after the subject had dozed off in "slow" sleep. In S., the subject gets out of bed and performs several stereotype and coordinated movements with his eyes open. His actions may be of anti-social nature. During S., the pupils are narrowed and gaze fixed, and the electroencephalogram records a quietly awakened state (alpha rhythm), which, however, is not suppressed by external irritants and persists when the eyes are open. This distinguishes this condition from the usual relaxed awakened state. There is no spontaneous transition from S. to wakefulness: the S. episode usually ends with a return to normal physiological sleep. On waking up in the morning, the subject does not remember what happened to him at night.

Soul, a concept whose expression historically altered views of mans *psyche*; in religion, idealistic philosophy and psychology S. is a non-material entity that is independent of the body. The appearance of the concept "S." can be traced to animistic ideas of primitive man who provided a primitive-materialistic interpretation of *sleep*, fainting, death, etc. *Dreams* were regarded as impressions of S. departing from the body during sleep and existing independently. The concept "S." was further developed within the context of the *history of psychology* and was expressed in the dispute between idealistic and materialistic theories of psyche. In Antiquity it was already known that the brain was the S. organ (Alcmaeon), while S. itself was believed to be a type of one of the elements: fire (Heraclitus, Democritus), the air (Anaximenus), or a combination of the four elements (Empedocles). Aristotle was the first to propose that S. was a "form" of the living body and distinguished three types of S.: nutritive (vegetative) S., sensory (animal) S., and rational (specifically human) S. In the Middle Ages this theory was transformed into an idealistic theory (Thomas of Aquino). In modern times Descartes identified S. with consciousness as the subject's reflection. In empirical psychology the concept of S. was replaced by the concept of emotional phenomena. In philosophical and psychological literature the term "S." is used extremedy rarely, as a synonym for "psyche". In everyday usage the term "S." usually corresponds to the notions "psyche", "inner world", "emotional experience", "consciousness".

Space Psychology, a branch of psychology that investigates the psychological aspects of the work of cosmonauts, the dependence of these aspects on a number of specific factors (weightlessness, hypodynamia, relative *sensory deprivation*, and others), as well as the ways and means of the purposeful organisation of the cosmonauts' psychological activity during preparation for and in the course of spaceflights. S.P. is the extension of that branch of *aviation psychology*, which, owing to the extreme conditions of the cosmonauts' activity and complexity of tasks fulfilled by them, has additionally assimilated many other branches of psychological science: *engineering*, *medical*, *social*, and *pedagogic psychology*. At the present time the basic areas of S.P. have been formed, which it is expedient to examine in connection with the stages of preparation for and realisation of spaceflights. The preparatory stage comprises a number of problems associated with the *psychological selection* of cosmonauts, taking into consideration their individual characteristics during the period of professional training, and the psychological aspects of acquiring special operational *skills* and psychological preparation for action of spaceflight factors, as well as for the special conditions of functioning. Long-duration orbital flights require the drawing up of a system of psychological service for a cosmonaut's routine activity. This includes the psychological substantiation of rational schedule of work and rest at different flight stages, systematic control and forecasting of the crew's *psychic states*. An important measure during the flight is psychological support, including the timely correction of patterns of activity, as well as diverse influences aimed at regulating the functional state of crew members. In the post-flight period issues of the psychological service embrace a host of problems linked with the cosmonauts' readaptation to earth conditions and the elaboration of methods of facilitating this process. With the development of S.P., engineering S.P. becomes a very broad area, ensuring the stages of planning, design and construction of manned spaceships corresponding to human specifics and characteristics, i.e. to people who will be living and working in and operating these spaceships. An additional problem of engineering S.P. is the development of special training equipment and simulators which would model most closely the field conditions and factors of spaceflights.

Special Psychology, a branch of psychology that studies individuals characterised by deviation from normal mental development owing to innate or acquired defects in the forming and functioning of the *nervous system*, e.g. the psychology of the blind (*typhlopsychology*), deaf (*surdopsychology*), mentally retarded (*oligophrenopsychology*); and the psychology of children with temporary retardation of mental development, speech defects, and so on. Like special pedagogy (typhlopedagogy, surdopedagogy, oligophrenopedagogy, etc.), S.P. is part of an integral

scientific discipline called defectology, which studies the developmental specifics of children with physical and mental defects, and also the regularities inherent in their education and training. In the USSR, S.P. developed in connection with the activities of Lev Vygotsky, Tatyana Vlassova, Yuri Kulagin, Vladimir Lubovsky, Alexander Meshcheryakov, and Ivan Sokolyansky. An initial defect, e.g. deafness, was found to cause secondary changes in mental development, and changes in the individual's world outlook, system of relationships with other people, thinking, perception, and so on. Data obtained by S.P. underlie the elaboration of education and training programmes for persons with anomalous mental development, and also the provision of vocational guidance and selection.

Specialisation of Conditioned Reflex, a process wherein initial *generalisation* and subsequent repetition of a conditioned *reaction* causes the latter to become contingent with a strictly specific *signal* and to actualise only in the required form. The neurophysiological mechanism of S. of C.R. is in localisation of activity in the *brain* structures that secure the given reaction (see *Conditioned Reflex*).

Specific Energies Doctrine, the idea that the quality of a *sensation* depends on which *sense organ* is stimulated. The same external factor acting on different sense organs would cause different sensations. For instance, when applied to the eye, electric shock would cause a visual sensation; when applied to the ear, an acoustic sensation, and so on. At the same time, a sensation characteristic of a given organ may be caused by many different effects. For example, a visual sensation would arise when the eye is stimulated with light, mechanical shock, or electric current. Johannes Müller, a German physiologist, interpreted these phenomena as law-governed. However, from correctly noted facts, he inferred agnostically that sensations allegedly do not provide us with correct ideas about the environment. In reality, adequacy of sensation to actual stimulation is ensured because the sense organs are formed so as to admit only specific types of external *signals* to definite nerve endings.

Speech, a *language*-mediated form of human *communication* (1) which developed in the course of human activity involving material transformation of the surrounding world. S. includes generation and perception of messages with the purpose of communication or (in specific cases) control and regulation of one's own activity (see *Speech, Inner*; *Speech, Egocentric*). Psychology is chiefly concerned with the place of S. within the system of human higher mental functions, the correlation of S. with *thinking, consciousness, memory, emotions,* etc. The specifics of S. which reflect the structure of personality and activity are particularly important. Most Soviet psychologists regard S. as vocal activity which exists either in the form

of an integral act (if the activity in question is specifically motivated and not actualised by other forms of activity), or in the form of vocal acts involved in activity other than speech. The structure of any vocal activity or vocal act basically coincides with that of any action, i.e. involves the phases of orientation, planning (in the form of "inner programming"), actualisation, and control. S. may be active, constructed anew, and reactive, i.e. representing a concatenation of dynamic speech patterns. In spontaneous oral S. (see *Speech, Oral*), conscious choice and assessment of the lingual means used therein are reduced to a minimum, whereas in written S. (see *Speech, Written*) and in rehearsed oral S. they play a significant part. Various forms of S. are constructed by specific regularities. For example, oral S. permits significant deviation from the grammar of a given language; again, logical and, moreover, artistic speech is a special item in itself. S. is studied not only by the psychology of S., but also by *psycholinguistics*, the physiology of S., linguistics, semiotics, and other branches of knowledge.

Speech, Dactylologic, reproduction of words by dactyl letters, i.e. by configurations of finger and their movements. S., D. is used in Soviet pedagogy as an aid for teaching verbal speech to the deaf, and also in personal *communication* (1) among the deaf, and between people with normal hearing and the deaf.

Speech, Egocentric, speech addressed to oneself, one that controls child practical activity. As the Soviet psychologist Lev Vygotsky showed in his polemic with the Swiss psychologist Jean Piaget (who later agreed), S., E. originates from external (communicative) speech, and is the product of its partial *interiorisation*. Thus, S.,E. is a kind of transitional stage from external to inner speech (see *Speech, Inner*). The notion S.,E. is also used in *pathopsychology* when describing various syndromes.

Speech, Gesture, a way of personal *communication* (1) among the deaf by means of a system of gestures characterised by peculiar lexical and grammatical regularities, ruled by pronouncedly specific gestures, the basic semantic units of S.,G., and also by the functional role of gestures (their use in informal communication). Formal communication (at meetings, in interpreting lectures, etc.) involves modelling S.,G., in which gestures are consistently used to reproduce words. Modelling S.,G. uses elements of dactylologic speech (see *Speech, Dactylologic*) to designate endings, suffixes, etc. S.,G. is also used as an aid (in addition to verbal *speech*) in teaching and educating children with defective hearing.

Speech, Inner, various types of the use of language (linguistic meanings, to be more precise) outside the process of actual *communication* (2). Psychologists distinguish three basic types of S.,I.: (a) inner articulation, or "speech to oneself", which retains the

structure of external *speech* but is devoid of phonation, i.e. articulation of sounds, and typical of solving mental problems in difficult situations; (b) S.,I. proper, when it is a means of *thinking*; it makes use of specific units (a code of images and schemes, an object code, object meanings) and has a specific structure, distinct from that of external speech; (c) inner programming, i.e. the act of forming and securing in specific units a project (type, programme) of speech utterance, a whole text, and its contextual parts (A. N. Sokolov, N.I. Zhinkin, and others). In *ontogenesis*, S.,I. forms in the process of *interiorisation* of external speech.

Speech, Oral, verbal *communication* (1) involving linguistic means perceived by hearing. S.,O. is characterised by the fact that the individual components of a given oral communication are produced and perceived successively. S.,O. production comprises elements of orienting, simultaneous planning (programming), lingual actualisation and control; in this case, planning is performed along two parallel lines and concerns the contextual and motor-articulatory aspects of S.,O.

Speech, Written, verbal *communication* (1) by means of written texts, which may either be delayed (like a letter, for instance) or direct (like in exchange of notes at a meeting). S.,W. is distinguished from oral speech (see *Speech, Oral*) not only in that it uses graphic symbols, but also with regard to grammar (chiefly syntactically) and style, as seen in the syntactical structures and specific functional styles typical of S.,W. The latter is characterised by highly complex composition and structure, which require special training; hence the specific task of teaching S.,W. at school. Inasmuch as S.,W. may be percieved either at once, or in big pieces, its perception largely differs from that of oral speech.

Statistical Methods (in psychology), certain methods of applied mathematical statistics used in psychology chiefly to process experimental results. S.M. are mainly designed to render the inferences of psychological studies even more authentic by using probability logic and probability models. The history of statistics in psychology shows many examples of positive mutual influences. For instance, the idea of *regression* and *correlation analysis*, so important for contemporary science, resulted from Francis Galton's attempts to examine the regularities whereby children inherit their parents' psychological and physical features. To study intellectual abilities, several versions of *factor analysis* were developed. A number of statistical methods were worked out to check the quality of psychological tests and to be used in vocational selection (see *Psychological Selection*). The following trends are now apparent in the use of S.M. in psychology: (1) descriptive statistics involving data grouping, tabulation, graphical presentation and quantitative description; (2) theory of statistic inference, used in psychological studies to forecast sampling results; and (3) theory of

experiment planning, which serves to reveal and check causal relationships between variables.

Status (in social psychology), the *subject*'s position in a system of *interpersonal relations* that determines his rights, duties, and privileges. In different *groups*, the same individual may have a different S. The substantial discrepancies in the S's, which the individual acquires in groups with different *levels of group development*, content of *activity* and *communication* (I), often cause *frustrations*, *conflicts*, etc. S. is experimentally revealed by referentometry (see *Referentometric Method*). *Prestige* and *authority*, both specific measures of the individual's personal services recognised by society, are important characteristics of S.

Stepwise Forming of Mental Actions, Concept of, a theory of complex multiform changes caused by the forming of new *actions*, *images* and *concepts* in man. It was advanced by Soviet psychologist Pyotr Galperin. The concept includes six steps. The first involves the forming of a motivational (see *Motivation*) basis of action (when the subject develops an attitude towards the *goals* and *tasks* of the impending action, and towards the subject-matter to be learned). The second step involves the making by an individual of a scheme of the *orientating foundation of an action* (by distinguishing systems of reference points and indicators that must be taken into consideration in performing the action). As the action is mastered, the scheme would be continually verified and specified. The third step involves the forming of an action in material (materialised) form, when the subject performs the required actions relying on outwardly imagined action patterns specifically on the scheme of the orienting foundation of an action. The fourth step involves "loud socialised speech", when repeated reinforcement of some action by continuously correct solutions of diverse problems makes unnecessary to use the orienting scheme; its content is reflected in *speech* which is the support of the developing action. The fifth step (the forming of an action in "soliloquy") involves gradual disappearance of the outward, sonic aspect of speech. At the final, sixth step, the speech process "leaves" consciousness where only the final result remains, viz., the objective content of a given action (see *Interiorisation*). At each step, the action is performed first in a developed form to subsequently become gradually reduced or compressed. Empirical forming of a new action (or concept) may take place with omission of some of the above-mentioned stages. However, only thorough knowledge of the S.F. of M.A., system would make it possible to decode the mechanisms of each specific case and explain the concrete dynamics of action formation. Galperin termed special organisation of S.F. of M.A., for obtaining an action with definite preset indices of generalisation, reason, conscience, criticality, etc, as planned stepwise forming of mental actions. In this case, stepwise changes would be planned and rigidly

controlled by the experimenter. This would make it possible to establish distinct correlations between experimental training effects, the content of human activity for mastering a new action, and characteristics of the obtained effect. Planned stepwise forming of mental actions would, in this case, become a method of psychological investigation, a variety of the experimental-genetic method (see *Methods of Psychogenetics*). Practical application of S.F. of M.A., C. in general and special training is designed to enhance the quality of the forming actions and concepts in trainees while reducing their training time.

Stereotype, Social, a simplified, schematised, and often distorted representation, characteristic of commonplace consciousness, of some social object (a group or person belonging to the given social unit, etc.). S.,S. secures certain, sometimes unimportant but relatively stable features of a given social object (see *Stereotyping*). The term S.,S. was introduced by Walter Lippmann. It differs from other forms of knowledge in that the information upon which it is based correlates not with a corresponding object, but with other pieces of knowledge, which may prove false. The existence and spread of S.,S. are promoted by certain events in *interpersonal communication* and *social perception*, such as social *attitudes*, the *halo effect*, the *primacy effect* and the *novelty effect*. S.,S. formation is a common bourgeois propaganda technique for manipulating mass consciousness, justifying race discrimination, etc. (see *Psychology of Propaganda*).

Stereotypes of Perception, see *Stereotype, Social*.

Stereotyping, the perception, classification and assessment of social objects (events) on the basis of specific notions (see *Stereotype, Social*). S. is a major characteristic of intergroup and interpersonal perception and reflects the schematised nature and effective tinge generally inherent in those forms of social perception (see *Perception, Social*). From the psychological viewpoint, S. is the attribution of similar characteristics to all members of a given social *group* or community without sufficient awareness of their possible distinctions. Basing on elementary general psychological mechanisms, associated with data processing, S. boils down to a complex socio-psychological phenomenon which performs several functions, the most important of which are maintenance of individual and group *identification*, justification of possible negative attitudes towards other groups, and so on.

Stevens' Law, a formula established by the US scientist Stanley Stevens and linking intensity of *sensation* to a specific degree of the physical intensity of the *irritant*. Psychophysiological evidence is used to substantiate S.L. As a rule, however, the results of psychophysical measurements show highly strong individual variability, which makes it difficult to unambiguously prove the advantage of the

regarded as the psychic bedrock underlying all psychoological processes); interpretation of man's mental S's as socially conditioned; recognition of the presence of numerous levels of psychic S's bound by hierarchic connections. Transition from a deep-seated to a higher S. is characterised by transformations of S's. Deep-seated S's. may remain buried in *consciousness*.

Style of Leadership (Style of Management), a system of ways typically used by a leader (manager) to influence his subordinates. Kurt Lewin distinguished three S's of L.: authoritarian (involving rigid methods of administration, suppression of all initiative and ban on discussion of future decisions, etc.); democratic (collegiality, encouragement of initiative, etc.); and anarchic (refusal to administer, self-withdrawal from leadership; etc.). Their descriptive versions may be: directive, collegial, liberal, etc. Soviet social psychology has shown that S. of L. is the requisite and consequence of the *level of group development*. It also depends on the joint activities underlying *interpersonal relations* in a *group*. Typical of groups with a high level of development is a collectivist S. of L. (management), assuming the leader's responsibility before the *collective* and the latter's conscious subordination to him, full power and independence of the work collective, adequate responsibility, and the combination of maximum centralisation and maximum democratism. *Corporations* practice authoritarian S. of L., viz. bureaucratic centralism inherent, for instance, in capitalist society, especially under fascist and semi-fascist dictatorships, and characterised by maximum centralisation and minimum democratism. Anarchic S. of L. is also possible in social *associations* (see also *Leadership*), when the social value of factors conditioning the relations among group members is low.

Subconsciousness, see *The Unconscious*.

Subject, an *individual* or *group* as a source of knowledge and transformation of reality; an agent of *activeness* (see *Activity*). All idealist philosophies see the source of S.'s activity in the S. himself. However, dialectical materialism, the philosophical foundation of scientific psychology, regards S. as a product of historical development, and links his activity with the specifics of man's activity designed to transform the material world. Real, practical changes in the object during that activity are, in fact, the criterion of the adequacy, correspondence of reality to the *images* arising in S., which allow him to regulate his own activity.

Subjective Semantic Space, a model of the categorial (see *Categorisation*) structure of individual consciousness, on the basis of which objects, concepts, etc. are classified by analysing their meanings. By arranging certain meanings in the semantic space, one

can analyse them to determine their similarity or distinction. Mathematically, S.S.S. is expressed by coordinate axes and points, and by measuring the distance between them. The construction of S.S.S. as an investigation method and a model of categorial structures has come to be widely used in the psychology of *memory* (semantic models of long-term memory), the psychology of *thinking*, and the theory of *decision-making*. This method is also used in the psychology of differential distinctions, and in examining the cognitive aspects of *consciousness* and individual self-awareness.

Sublimation (in Sigmund Freud's *psychoanalysis*), a mechanism of psychological defence (see *Defence, Psychological*) that alleviates tension in *conflicts* by transforming instinctive forms of psyche into those more acceptable to the individual and society. According to Freud, a particular instance of S. is the shift of *libido* to *creative activity*; S. may also be achieved by jokes, show of wit, and other actions that instantly cause discharge of tension in forms approved by society. These ideas about S. reflect a biological interpretation of psyche, generally inherent in *Freudianism*. Beyond its psychoanalytical interpretation, the term "S." is used to designate a shift of individual activity to a higher level.

Subsensory Perception, a form of direct mental *reflection* of reality caused by *irritants* whose impact on individual activity the subject cannot explain to himself; a manifestation of *the unconscious*. In determining *sensation thresholds*, physiologists and psychologists (Ivan Sechenov and Gustav Fechner) discovered facts showing that behaviour is influenced by unrealised stimuli; contemporary psychology has suggested the notions "pre-attention" (Ulric Neisser) and "subsensory area" (Grigori Gershuni) be used to designate those facts. Being associated with data processing beyond volitionally controlled activity, pre-attention processes ensure an adaptive reaction to certain, still obscure, situational changes. The zone of *irritants* (inaudible sounds, invisible light signals, etc.) that cause involuntary, objectively recorded reaction, and can be realised when they are turned into signals, was called the subsensory area. The study of pre-attention processes and subsensory irritants makes it possible to reveal reserve potentials in human *sense organs*.

Suggestion, a process in which a person's mental sphere is influenced, owing to declined consciousness and criticality in perceiving and actualising the suggested material, and to the absence of a purposeful active *comprehension* of that material, developed logical *analysis*, and of proper assessment of the material as related to the past experience and the present state of the subject (Konstantin Platonov, Vladimir Myasishchev et al.). Subsequently, the content of the

consciousness received through S. would be of obsessive nature; the subject will comprehend and correct it with difficulty, since it represents a totality of "suggested *attitudes*" (Dmitri Uznadze). S. is a component of normal human *communication* (1), but may also be a specially organised type of *communication* (2) that implies uncritical perception of the suggested information and is counter to the subject's *beliefs* (Boris Parygin, Yuri Sherkovin). S. is realised in the form of heterosuggestion (outside action) and *self-suggestion*. The object of heterosuggestion may be both an individual person or a *group*, social stratum, etc. (the phenomenon of mass S); the source of suggestion ("suggestor") may be an individual, a group, or the mass media. Group S. is a factor inducing *conformity*. Self-suggestion means that the suggestor and the suggerend are combined in one person. S. is achieved verbally (by words or intonation) and non-verbally (mimicry, gestures, other person's actions, or the environment). As for implementation techniques, S. is classified into direct (imperative) and indirect forms, and also into intentional and unintentional forms. Direct intentional S. consists in the suggestor's using special "verbal formulae", which are introduced into the suggerend's mental sphere to become active elements of his consciousness and behaviour. The content of indirect S. is included in the transmitted information in a concealed form and characterised by unconscious, unnoticeable, and involuntary assimilation. Indirect S. may be both intentional and unintentional. By the criterion of the suggerend's state, the following types of S. are distinguished. S. in a wakeful state (see *Wakefulness*), S. in *hypnosis*, S. in natural *sleep*, and post-hypnotic S. The degree of effective S. would depend on (1) the suggestor's qualities (his social *status*, charm, and volitional, intellectual superiority and greater strength of character); (2) the suggerend's traits (degree of *suggestibility*); (3) relations between them (trust, authority, dependence); (4) the manner in which S. is made (level of reasoning, way of combining logical and emotional components, reinforcement, and other effects). The impact of certain *mass communication* media, advertisements, vogue, customs, and faith in something is partially based on S.S. is widely used in medicine to correct the patient's psychological and somatic state (*psychotherapy*). In pedagogy attempts are being made to use S. in the course of teaching (so-called suggestopedia) (G. Lozanov). In *experimental psychology*, S. is sometimes used as a technique for directly changing the individual's emotional state, *motivation*, and *attitudes*.

The Superconscious, a level of individual mental *activity* in solving creative *tasks*, uncontrollable by individual conscious volition. An idea about the specifics of this level was advanced by Konstantin Stanislavsky, Soviet theatrical theoretician and pedagogue, who designated it by the

term "superconscience", implying the highest stage of the creative process as distinguished from both its conscious (see *Conscience*) and unconscious components. Subsequently, Pavel Simonov interpreted superconscience as the creative *intuition* mechanism responsible for a recombination of former impressions whose correspondence with reality has been re-established. With regard to processes of individual scientific creative activity, the S. is represented in their regulation of the categorial apparatus of cognition, not realised by the scientist himself, who is engrossed in the subject of research, but whose structure and developmental requirements are reflected in his hypotheses and individual decisions (Mikhail Yaroshevsky). Hence, to "decode" the S., a *categorial analysis* is needed. The notion of the S. allows to delineate two forms of unawared mental activity, one depending on the information already imprinted in the brain (determination by the past), i.e. the *unconscious*, and the other aimed at creating what had never occurred in individual and collective experience (determination by the required future), the S. This creation would occur in the process of the person's interaction with the world of cultural values, which the person not only assimilates, but also creates to reflect the mature trends of that world's objective development. This interaction results in artistic images, scientific discoveries, and other creative products, in which, in addition to what comes out in the mind of the individual subject who had engendered them, there is also the objectively significant content imprinted in the mind owing to the work of thought at the level of the S., not represented in the individual's *reflexion* (i.e. not realised by him).

Superego, see *Freudianism*.

Supervalent Ideas, concepts, ideas or conclusions engendered in man's consciousness by actual situations and acquiring extraordinary (even pathological) significance for him. Unlike *raving*, which is incorrect and inadequate judgement of reality, S.I's have certain (though more frequently insignificant) real ground. Yet, as in case with raving, a person with S.I's cannot be dissuaded, for he lacks critical attitude towards those ideas. Running into indisputable evidence that deflate his S.I's, the individual uses unconscious defence mechanisms (see *Defence, Psychological*) without revealing S.I's in his behaviour. However, in a situation that reinforces S.I's, the latter arise with renewed intensity, especially if the individual is straightforward, overconfident, and authoritarian. S.I's are also seen in the bahaviour of epileptoid and organic psychopaths and in persons with organic brain lesions, epilepsy, and certain forms of schizophrenia.

Surdopsychology, a branch of *special psychology* that examines the mental development of the deaf and people hard of hearing and the possibility to correct audition by training and education. S. studies ways for prevent-

ing mutism in people with hearing defects that exclude normal oral *communication* (1); reveals their cognitive specifics; clarifies the compensatory possibilities of visual *perception*, vibrational sensations, etc. in case of impaired acoustic perception; and examines the specific features of *thinking*, *memory* and other mental processes that form when acoustic *sensations* are either absent or underdeveloped. In organising the education of children who are either deaf or hard of hearing, and also their vocational training and specialised employment, one must essentially account for available surdopsychological evidence.

Survey, a method of socio-psychological research through *questionnaires*. In social sciences (demography, sociology, psychology), S's are conducted for the purpose of establishing biographic data, opinions, *value orientations*, social *attitudes*, and personality characteristics of respondents. Depending on the character of required information and methods of obtaining it, various types of surveys are employed: overall (census), random (encompassing a certain age group, work collective, etc.); verbal (interview) and written (questionnaire); individual and group; personal or mediated (by phone, or by post). To conduct a survey of any type, two problems require prior solution: (1) volume and degree of sample homogeneity, for the survey loses either its relevance if confined to a narrow circle of persons, or reliability (see *Reliability of a Test*), if the subjects constituting the sample are widely heterogeneous as to the parameters under study; (2) representativeness of the selection, i.e. possibility of extrapolating the conclusions obtained in the study of the sample to the entire group.

Symbol, an *image* representing other (generally highly multiform) images, meanings, and relationships. S. is related to the notion of sign; however, the two should be distinguished. For the sign (particularly in formal logical systems), polyvalence is a negative characteristic since the more univalent a sign, the more constructive its use. Conversely, the more polyvalent a S., the richer its content. S. is a major category in the arts, philosophy, and psychology. In general psychology, the category of S. was developed in detail in *psychoanalysis* and *interactionism*. Traditional psychoanalysis interprets S's as unconscious images, mainly sexual in origin, which condition the structure and functioning of human mental processes. Psychoanalysts suggested an interpretation of several S's (fire, flight, elevation, etc.) observed in *dreams*. Later, psychoanalysis shifted its attention to analysing and interpreting S's of social and historical origin. For instance, *the depth psychology* of Carl Yung distinguished the "collective unconscious" (reflection of the experience of past generations) as being embodied in archetypes—universal human prehistoric images. Archetypes are inaccessible to direct observation; they are revealed only indirectly, via their projection onto outside objects, which manifests

itself in symbolics common to all mankind, viz. myths, religious beliefs, dreams, and works of art. Psychoanalysts proposed an interpretation of a number of S's that embody archetypes (Mother Earth, hero, wise old man, and so on). Ethnopsychologists, ethnographers, culturologists, and specialists in the psychology of the arts made numerous observations and experimental studies concerning the meaning of S's. Marxist philosophy recognises the important role of S's in the functioning of human mind. However, it rejects the indeterministic, idealistic interpretation proposed, say, by psychoanalysts and interactionists. Though not ignoring the facts that they study, Soviet psychology nonetheless rejects their interpretations of S's, which they consider to be detached from the structure of socio-economic relationships existing in society. From the Marxist viewpoint, a true analysis of S. system would be only possible after S's were shown to originate from a social system and, in the final account, through a number of mediatory elements, from material production.

Sympathy, a stable approving attitude of one person towards other people, groups or social phenomena that takes the form of affability, goodwill, and admiration and stimulates communication, reciprocal attention, and mutual help. S. normally arises on the basis of common views, *values*, *interests*, and moral ideals. It may also come from a selective positive response to attractive appearance, behaviour, and traits (see *Attraction*). In the process of its development, S. may become so strong as to turn into either passionate infatuation or strong affection; it may also end up in cooling and disillusionment and turn into antipathy. In *interpersonal relations*, S. is a factor of human integration and maintenance of psychological comfort.

Synaesthesia, a condition in which an irritant acting on a given *sense organ* would, irrespective of the subject's will, cause not only a sensation specific to that sense organ, but also an additional subjective sensation characteristic of another modality. The most widespread S. is so-called colour hearing, in which the sound, apart from acoustic sensation, causes a colour sensation. Colour hearing was observed in the Russian composers Nikolai Rimsky-Korsakov and Alexander Skryabin. In many people, the yellow-orange colour evokes a sensation of warmth, and the bluish-green colour that of cold. S. appears to represent an essentially intensified *interaction of analysers*. Peculiar S. forms (for example, visualisation of what one hears) are observed in pathology.

Syncretism (in psychology), integrity of mental functions in early stages of child development. S. is seen in the tendency of child thinking to correlate heterogeneous phenomena without sufficient ground. Some investigators (Edouarde Claparède, and others) noted the syncretic nature of child perception, which manifests itself in an integral sensory image of a given

object, and also in that the child fails to distinguish and correlate its inner associations and components. Jean Piaget assigned S. to the basic characteristics of child thinking, maintaining that a child's inability to think logically is explained by the tendency to substitute *synthesis* for a mere addition. In taking the association of impressions for association of things, the child would unconsciously and randomly (often in the form of a *game* or word manipulation) transpose the meaning of a word to a series of only outwardly associated phenomena or objects. According to the Soviet psychologist Lev Vygotsky, S. is highly important for developing child thinking. By selecting, in the course of practice, syncretic associations corresponding to reality, the child would recreate for himself the true meaning of words.

Syndrome, a specific combination of features (symptoms) with mechanisms of common origin. The term "S." is used in *pathopsychology* to signify a definite combination of symptoms of a particular disease. Recently, S. has come to be broadly interpreted in characterising manifestations of nervous system properties and combinations of definite symptoms that reveal accentuated traits of character (see *Accentuation of Character*).

Synthesis, the process of practical or mental reconstruction of a whole from its parts, or of combining various elements or incorporation of various elements and aspects of an object into a single whole, both processes being involved in body-environment interactions. S. is an essential stage of cognition inseparably associated with *analysis*, both supplementing each another. As an intellectual operation inherent in humans, S., like analysis, historically develops in the course of work.

Systems Principle (in psychology), a methodological approach to the analysis of psychological phenomena, in which a given phenomenon is regarded as a system that is unreducible to the sum of its elements and has a *structure*. The properties of an element are determined by its place within the structure. S.P. involves applying general S.P. to some particular field. S.P. ideas were developed by *Gestalt* psychologists (see *Gestalt*). Psychoanalysts associated S.P. with analysis of affective processes: they regarded so-called complexes as the basic factors of human mentality. In connection with the principle of development, S.P. was implemented in Jean Piaget's theory of operational intellect (see *Geneva School of Genetic Psychology*). In *neo-Freudianism*, and also in symbolic *interactionism*, the system of social, sign-mediated interaction with its intrinsic structure is regarded as primary and determinant in relation to individual psyche. Soviet philosophers and psychologists (Vsevolod Kuzmin, Boris Lomov, Erik Yudin, and others), proceeding from the Marxist methodology, regard psychological systems as purposeful and socially conditioned. In the course of individual development, these systems

pass consecutive stages of structural complication, differentiation, and transformation. The only genetic foundation for the development of psychological systems is joint (social) object-related human activity, including *communication* (1).

Systems-Structural Analysis, see *Structure*.

T

Tachystoscope, an instrument that allows to expose visual *stimuli* for some strictly specified time, including very brief periods. One of the first T. designs, in which stimulus time was controlled by a mechanical shutter, was developed by Wilhelm Wundt. In addition to such mechanical T's, there are also electronic T's based on electron modulation of the illumination level. In recent years, computer-controlled indicators and displays have come to be increasingly used for data presentation. Projective T's in the form of specially equipped slide projectors are used for collective experiments. They are widely employed in theoretical and applied studies of *perception*, *identification*, *memory*, and other cognitive processes.

Talent, a highly developed level of *abilities*, primarily of special ones (see *Abilities, Specific*). The presence of T. should be assessed by the results of individual *activity*, which must be characterised by basic novelty and originality of approach. Being directed by a manifest need for *creative activity*, man's T. always reflects specific social demands. Hence, the individual's *world outlook*, and his social stance play a very important role in the development of his T.

Talk (in psychology), a method for obtaining information through *verbal* (oral) *communication* (2). It is widely used in various spheres of psychology (*social*, *medical*, child, etc.), and is the main way for leading the subject into situation of psychological experimentation, from strict instruction in psychophysical experiment to free communication in *psychotherapy*. The specific forms of T. include introductory T., inviting the subject to cooperate; experimental T., during which workinghypotheseeeeessarechecked:and interview.

Talk, Clinical, see *Interview, Clinical*.

Task, a goal of activity set in specific conditions (for instance, in a *problem situation*), which must be resolved by transforming those conditions according to a specific procedure. The problem incorporates requisites (goal), conditions (the known) and the unknown formulated in the question. There exist certain relationships and dependencies through which the search is conducted and the unknown elements are established through the known ones. Resolving a T. falls into a logic-psychological category when presented to another subject for solution. The subject re-

formulates the T., introduces additional specifications and searches for a method of solution, which indicates that he engages in the process of *thinking*. In this connection thinking is often interpreted as the ability to solve a T. The full cycle of productive thinking incorporates the statement and formulation of the T. by the subject himself, which occurs in posing aims whose conditions are of a problematic nature (see *Problem*). In cognitive activity perceptional, mnemonic, verbal and conceptual T's are distinguished. T's can arise in the process of practical activity or can be created deliberately (training, role-playing T's). In the working out of types of tasks, such parameters as the number of decisions, the characteristics of the conditions (completeness, lack of completeness, level of contradiction), of requisites (the degree of their definition), and the relation of the aim to the societal and individual *needs* are used. A hierarchically organised sequence of T's forms a programme of activity.

Taxes, innate orienting of an organism in space as a response to favourable (positive T.) or unfavourable (negative T.) environmental conditions. In plants, such responses show in changes in the direction of growth (*tropism*). Depending on the effect, physiologists distinguish photo-, chemo-, thermo- and other T. T. of Protozoa and many lower multicellular animals are represented by orthotaxes (changed movement speed) and clinotaxes (changed direction of movement by certain angle). Besides, animals with developed central *nervous system* and symmetrically arranged *sense organs* may actively select the direction of their movement and maintain that course (topotaxes). T. are regular components of even the most complex forms of *behaviour*.

Taxon, a set of discrete (separate) objects associated by specific community of properties and symptoms that characterise it (see *Ethology*).

Temperament, an individual's characteristic as to innate intensity, speed and rhythm of mental processes and states. Most T. classifications and theories include *activeness* and *emotionality*. Behavioural activeness characterises the degree of energy and speed or, on the contrary, slowness and inertia, whereas emotionality characterises the specific trends and valence (positive or negative) of *emotions*, *sentiments*, and *moods*, their modality being expressed by joy, grief, fear, sorrow, anger, and so on. Psychologists distinguish T. proper (a specific stable combination of psychodynamic properties manifested in activity and behaviour) from the organic foundation of T. There exist three basic explanations of T. but the first two are merely of historical interest. The first (humoral) linked organic states with correlation of various body fluids (liquids) to distinguish four types of T., viz. sanguinic, choleric, melancholic, and phlegmatic (Hippocrates, Galen), and this terminology became widespread. The second (constitutional) system proceeds from distinctions in body

constitution, viz. physical structure and correlation of individual elements and various tissues (Ernst Kretschmer, William Sheldon). The third system associates T. types with the function of the central *nervous system*. Ivan Pavlov's teaching about the effects of the central nervous system on the dynamics of behaviour distinguishes three basic *properties of the nervous system*, viz. strength, balance, and mobility of excitation and inhibition, and their four basic and typical combinations in the form of higher nervous activity: (1) strong, balanced, and mobile; (2) strong, balanced, and inert; (3) strong and disbalanced; and (4) weak. A *sanguine person* corresponds to type one, a *phlegmatic person* to type two, a *choleric person* to type three, and a *melancholic person* to type four. The studies of Boris Teplov and Vladimir Nebylitsin showed that the structure of the basic properties of the nervous system is much more complicated, and the number of combinations much greater than was previously believed. And yet, being most generalised as they are, the above-mentioned four types of T. may be used in studies of *individuality*. T. is relatively stable and little subject to changes caused by the environment and upbringing; however, it does change in ontogenesis. T. does not characterise the individual's essence (*motives, value orientations, world outlook*); nor does it directly determine his characteristic features. Yet, T. properties may both foster and hamper the forming of specific personality traits, since T. could modify the meaning of environmental and educational factors on which the development of a given personality would decisively depend.

Temporal Connection, a synonym for *conditioned reflex*. Currently interpreted as a general term which, in addition to conditioned reflexes requiring the *nervous system* to be actualised, describes analogues that may be developed in any protozoa lacking a nervous system.

Territorial Behaviour of Animals, a set of various forms of animal activity aimed at occupying and using a specific space (area, place) with which all or some of their vital functions (sleep, rest, feeding, procreation, etc.) are associated. These areas may be either constant or temporary, and belong to either individual animals or groups (common territory of herd, flock, family, etc.). The dimensions, shape and structure of the territories would strongly vary depending on the species. To show that the area is occupied, the "holder" would either make sounds or display himself; mammals would also make scent marks ("boundary marking") on readily visible objects (especially at the boundaries of the area). Animals always defend the territory they occupy.

Testing, a method of *psychodiagnosis* involving standardised questions and tasks (tests) with specific value *scales*. It is used for standardised measurement of individual differences. The three basic T. spheres are as follows: (a) education—in connection with the

increased education period and more complicated curricula; (b) vocational training and selection—in connection with increased growth rates of production and its becoming more complex: and (c) psychological consultation—in connection with accelerated socio-dynamic processes. T. allows, with a certain degree of probability, to assess the actual level of development of essential individual skills, knowledge, and personal characteristics. The T. process may be divided into three stages: (1) choice of test (depends on the purpose of T. and on test validity and reliability); (2) performance of test (determined by test instruction); and (3) interpretation of results (determined by a system of theoretical assumptions about the object of T.). All three stages must involve a skilled psychologist.

T-Group (training group), a group organised to influence its members within a system of *interpersonal relations* so as to develop their *socio-psychological competence* and *communication* (1) and interaction skills (see *Socio-Psychological Training*). Initial T-G's appeared as a practical addition to Kurt Lewin's school of *group dynamics*. At present, group dynamics is one of the most widespread models for examining interpersonal relations and group development stages. A T-G. is characterised by short-term existence (from several days to several weeks) and by absence of planned structure, standardisation and regulation. The main T-G. method involves free discussion (see *Group Discussion, Method of*), without any preliminary plan, combined with role games and other techniques. In order to produce good results, a T-G. should be characterised by mutual trust that would stimulate the participants to interpersonal relations (which they would normally hesitate to establish) and, at the same time, help them understand the processes that take place in their T-G. In critically approaching the practice of T-G., whose efficacy is substantially limited by the artificial situation of training and its separation from the practical activity of a given work *collective*, one may nonetheless recognise that a T-G. affords certain opportunities for organising group interaction and adjusting and regulating emotions in personal contacts.

Thinking, the process of an individual's cognitive *activity*, characterised by a generalised and mediated *reflection* of reality. T. is the object of complex, interdisciplinary studies. The correlation of matter and T., the possibilities and ways of cognising the world with the aid of T. are studied by philosophy. The main forms of T. (*concept, judgement, inference*) are studied by formal logic. The sociological aspect of studying T. is characterised by an analysis of the process of its historical development depending on the structure of various social formations. Physiology studies brain mechanisms with the aid of which T. is realised. Cybernetics considers T. as an informational process and records common and differing aspects in the work of a computer and in man's

thought activity. Psychology studies T. as cognitive activity, dividing it into types depending on the level of generalisation and character of means used, their novelty for the *subject*, degree of his *activeness*, T.'s adequacy to reality. The following types of T. are distinguished: verbal-logical, visual-image, visual-active. There are also theoretical and practical, theoretical and empirical, logical (analytic) and intuitive, realistic and autistic (linked with escape from reality into internal emotional experiences), productive and reproductive, involuntary and voluntary types of T. Like other psychic phenomena, T. is studied by objective methods in psychology. Wide use is made here of all the main methods of collecting empiric material: *observation*, *experiment*, *talk*, study of the product of activity. T. often develops as a process of solving *tasks*, which are distinguished by conditions and demands. The task must not only be understood by the subject, but also be accepted by him, i.e. correlated with *personality*'s need-motivational sphere. Thought activity is induced by *motives*, which are not only the conditions of its development, but are also factors influencing its productivity. A person's T. is characterised by the unity of the conscious and the unconscious. A big role in thought activity is played by *emotions*, which guide the search for a problem solution. A product of T. may be the *goals* of subsequent *actions*. The studies of *goal-formation* constitute an important section of the psychology of T. and of personality. They involve studies of the transformation of an external demand into a real goal, the choice of one of the existing demands, the correlation of voluntary and involuntary goal-formation, temporal dynamics of goal-formation, transformation of unconscious anticipations into conscious goals, the singling out of intermediate goals. In the context of the problematics of *joint activities* and *communication* (1) T. is studied within the structure of *interpersonal relations*. T. is an interpretation of the *reactions* and *movements* of another person, an interpretation of the results of a person's object-oriented actions and activity as a whole, a *comprehension* of another person's speech products (oral and written). Interpersonal cognition includes the formation of *representations* of another person's mode of T., his cognitive style, what he thinks about the subject of T., and what he thinks about what the subject thinks about him, etc. (see *Reflexion*). T. is included in the structure of influencing another person both in the process of cooperation and in *conflict* situations. In the course of *communication* (1) the results of one person's thought activity (knowledge) are passed on to another person. Knowledge (generalisations) may relate to the objective world or to the process of problem-solving itself (general methods of solution). T. itself may appear as joint, collective activity. Communication necessarily presupposes generalisation. T. is a part and special object of a person's *self-awareness*, the structure of which includes seeing oneself as the subject of T., differentiation of "one's own" and

tinguished are adult and child T. concepts, and those of representatives of various social groups. T. studies performed on the historical scale are designed to clarify the regularities whereby the individual becomes aware of the past and future. The traditional forms of this would be the study of the history of society and one's own genealogy. As a result, one can conceive the historical past and future as his own past and future, as a possibility for overcoming his own limited life span (see also *Psychological Time*).

Tiredness, a temporary decrease in *work capacity* under the effect of a prolonged effort. Arises from exhaustion of individual inner resources and discord of activity-ensuring systems. T. takes on a variety of forms at different levels, viz. behavioural (decline of productivity, reduced work speed and precision); physiological (difficulty in developing conditioned reflexes, increased inertness in dynamics of nervous processes) (see *Nervous System*); and psychological (declined sensibility; impaired attention, memory, and mental (see *Intellect*) processes, and shifts in the emotional-motivational (see *Emotions*) sphere. T. is concomitant with a number of subjective sensations of *fatigue*. The specifics of T. depends on the type of effort, its application, and on the time needed to restore optimal performance. Basing on this, psychologists distinguish physical, mental, acute, chronic, and other kinds of T. Marginal and pathological states of T. may develop in the absence of measures to reduce T. or eliminate its residual effects. Hence the urgent need for timely diagnosis and prevention of T. Preventive measures would imply rational organisation of labour, optimisation of work and recreation conditions, specialised training, and various means for enhancing individual resistance to T.

Tolerance, absence of or weak response to any unfavourable factor owing to reduced *sensibility* thereto. For instance, T. to anxiety shows in a higher threshold of emotional response to a threatening situation, and outwardly in stamina, self-control, and the ability to endure prolonged unfavourable effects without reducing one's adaptability (see *Adjustment*).

Topological Psychology, Kurt Lewin's theory, according to which human behaviour in the surrounding world may be described by specific mathematical concepts of topology, a science that studies spatial transformations, and by vector analysis. The starting point is the individual's "life space" taken as an integral field, inside which the individual's psychological forces (aspirations, intentions, etc.) with their specific orientation, magnitude and application points (designated by mathematical signs) occur and change. Some areas of the "field" attract the individual, and others would repel him. This quality of objects was termed their valence (either positive or negative), which characterises the motivational structure of his behaviour actuated by the "field" forces. This behaviour is

the function of an integral situation involving the individual per se and his psychological "space", wherein the goals, barriers thereto, etc. are localised. Lewin's attempt to restructure psychology on the basis of topology failed; yet, his interpretation of motivation as a dynamic "system of tensions", wherein the individual's motivations and their objects are inseparably represented, formed the foundation of a number of experimental models and methods that led to the establishment of important psychological facts and concepts (see *Unaccomplished Action Effect*; *Level of Aspirations*).

Transfer, the influence of a previously formed *action* (*skill*) on mastering a new action. T. manifests itself in that a new action is mastered more readily and quickly than the previous one. The T. mechanism involves the distinction (not necessarily conscious) by the subject of general elements in the structure of the mastered action and of the one being mastered. The more distinctly these similar elements are distinguished, the more readily and extensively is T. achieved. It may be said that the measure of T. would depend on completeness of the subject's orientation to the criteria of and grounds for performing an action (see *Orientating Basis of Action*). T. is insignificant when oriented to external, situational relations, rather than to substantial, basic relations. T. may involve any action components, and also components of a situation in which that action is mastered or applied.

Transference, a term used in Sigmund Freud's *psychoanalysis* to designate transmission to the psychiatrist of the patient's emotional attitude towards people significant to the latter, e.g. his father, his mother, and so on. Feelings of love, admiration, respect (positive T.), and also hatred, fear, aversion (negative T.) arise spontaneously in the patient during a psychoanalytical session when the psychiatrist's behaviour offers no explanatory causes. Freud regarded T. as transmission inherent in any human relationship, and manifesting itself not only in a therapeutic session, but also in the subject's everyday life.

Trial and Error Method, a method of evolving new forms of *behaviour* in *problem situations*. T. and E.M., which is widely used by *behaviourism* to explain *learning* as a random activity, became widespread in psychology after the works of Edward Thorndike, according to which blind trials, errors and accidental success, which reinforce successful trials, determine the way of acquiring individual experience by animals and man. In this way the coincidence of behaviour with the environment on a random basis was singled out, which permitted going beyond a strict alternative in interpreting the category of *action*: either its mechanistic or teleological interpretation. Subsequent study of learning indicated the weakness and limitation of the explanatory force of T. and E.M., for it fails to take into consideration the orientation of each trial inherent in each behaviour, its inclusion in a defi-

nite psychic structure. *Gestalt psychology* subjected T. and E.M. to criticism, counterposing it to problem solution through *insight*. The inefficiency and theoretical weakness of such contraposition was exposed by Ivan Pavlov. T. and E.M. preserved its significance in only a narrow sphere of artificially created *situations*; specifically, it was included in the set of the design principles of cybernetic apparatuses.

Tropisms, responses of a plant to an external stimulus (light, gravity, chemical substances, etc.) by growth in a direction determined by the stimulus (see *Taxes*). Jacques Loeb tried to explain the behaviour of organisms that have a *nervous system* by T. However, his concept, based on mechanistic determinism, proved scientifically groundless.

Typhlopsychology, a branch of *special psychology* which examines the mental development of the blind and people with poor eyesight, and ways and means for correcting it in training and education. T. studies the possibility of compensating impaired visual perception by means of other *analysers* (hearing and tactile sense), and investigates the mental specifics of *perception*, *memory* and *thinking* when there is shortage of information owing to blindness or weak eyesight. A special branch of T. is concerned with the study of the psychology of the blind-deaf-mute people with total early loss of vision and hearing, in whose training and development Soviet T. and *surdopsychology* have made noticeable progress (Ivan Sokolyansky, Olga Skorokhodova, and Alexander Meshcheryakov). The use of T. results allows to organise a scientifically-based process of training, education and work for the blind and people with weak eyesight.

U

Unaccomplished Action Effect (Zeigarnik Effect), a phenomenon characterising the influence on mnemonic processes of interruptions in activity. It was established by Blyuma Zeigarnik, who checked Kurt Lewin's hypothesis that, in virtue of retained motivational tension, interrupted tasks are remembered better than accomplished ones. Experiments showed that the number of remembered interrupted tasks were about two times higher than that of remembered accomplished tasks. U.A.E. depends on many variables, viz. the subjects' age, ratio of the number of accomplished tasks to the number of interrupted ones, time used in accomplishing each task, relative difficulty of tasks, the subject's attitude to interrupted task, subject's interest in accomplishing the task, and so on. U.A.E. is not a constantly observed phenomenon. When subjects were highly interested in their tasks, they were found to remember accomplished tasks better. At the same time, weak motivation resulted in better remembrance of interrupted tasks. These experiments subsequently prompted studies of the

influence of *level of aspirations* and *self-appraisal* on mnemonic processes. U.A.E. was found to persist with adequate self-appraisal, and to be absent with elevated or reduced self-appraisal. Despite abundant experimental material, there is still no exhaustive theoretical explanation for U.A.E.

Unconditioned Reflex, an inborn stereotyped response to biologically meaningful environmental effects or changes in the organisms's internal medium. The term was introduced by Ivan Pavlov and signifies a qualitatively unique class of innate reflexes that constitute the basis of conditioned reflex associations formed during one's lifetime. Unlike *conditioned reflexes*, which serve to adapt the body to changing environmental conditions, U.R's ensure adaptation to relatively constant conditions (irrespective of *reinforcement*). However, U.R's are virtually nonexistent in pure form. In *ontogenesis*, they form the foundation of complex systems of conditioned reflexes which, together with U.R's, determine the flexibility and dynamism of *behaviour*. There is no generally accepted classification of U.R's. The most important ones include the food, sex, defence, and orientating reflexes.

The Unconscious, (1) the totality of psychic processes, acts and states conditioned by realities which the individual is unaware of; (2) a form of psychic reflection, wherein the image of reality and the subject's attitude thereto do not come out as object of specific *reflection*, and constitute an integral whole. The U. differs from *consciousness* in that the reality it reflects merges with the subject's *emotional experience* and attitudes towards the environment; hence, one cannot voluntarily control the subject's actions and assess their results. In the U., reality is experienced by the subject via such forms of assimilation and identification with other persons and phenomena as direct "feeling into" them, *identification*, emotional *contagion*, and unification of different phenomena into a single series through involvement, rather than by revealing logical contradictions and discrepancies between objects on the basis of some substantial features. Quite often, the past, present and future coexist in the U. to combine in some single mental act (e.g. in a *dream*). The U. finds its expression in the early forms of child cognition of reality and in primordial thinking, in *intuition*, *affects*, *panic*, *hypnosis*, dreams, habitual actions, subliminal perception (see *Subsensory Perception*), involuntary *memorising*, etc., and also in aspirations, feelings, and acts, whose causes the individual in question is unaware of. Four classes of U. manifestations are distinguished: (1) superconscious phenomena (see *The Superconcious*); (2) stimuli of activity (motives and semantic attitudes), which the person is unaware of and which are caused by some desirable future of personal significance. This class of phenomena was revealed in investigating a person's behaviour after the latter had come out of a hypnotic state, in which he

was suggested a definite programme of actions, e.g. to go to a shop and buy a certain thing. In fulfilling a present programme, a person could not explain his behaviour. In attempting to explain the nature of that behaviour from the viewpoint of *psychoanalysis*, Sigmund Freud introduced the term "dynamic suppression of the U.". By the U. Freud understood unrealised drives, which, due to a conflict with social norms and standards, were not admitted to consciousness, were alienated through mechanism of suppression, and were manifested in slips of the word, errors, dreams, etc. Such U. manifestations are specific in that awareness by the subject of the causal link of unrealised drives with traumatic events does not lead to disappearance of emotional experiences conditioned by those drives (e.g. disappearance of fears), since the realised is perceived by the subject as something impersonal and alien to him, something happening to someone else, not to himself. In behaviour, U. effects are removed when the events that caused them are overcome by the subject together with another person, say, in a psychoanalytical session, or together with several persons (see *Psychotherapy, Group*). Foreign psychological schools, primarily that of Freud and his followers, give a narrow interpretation of U. manifestations since they make a one-sided analysis of the formal dynamic aspects of the U. They ignore the fact that the U. is conditioned by socio-historical factors and unjustifiably separate the U. from the real process of man's interaction with the environment, the only process that can reveal the essence of the U. and its functions in human behaviour. Soviet psychologists overcome these limitations in the theory of *attitude* and *activity approach* to the study of psychic phenomena by proceeding from a dialectico-materialist understanding of *psyche* and the nature and function of unrealised motives, semantic attitudes, and *personalised meanings* in man's life; (3) regulators of ways of performing activities (operational attitudes and stereotypes of automatic behaviour) that ensure its directed and stable nature without the person's awareness of them. They underlie control of automatic and involuntary actions, e.g. the process of solving *tasks*, and are conditioned by images of unconsciously anticipated events and ways of action based on past behavioural experience in similar situations. They can be realised by the subject if the latter encounters an unexpected obstacle to his habitual automatic behaviour. The Soviet scientist Nikolai Bernstein has studied the psychophysiological mechanisms of this type of the automatic behaviour on the basis of his theory of movement structure levels (see *Physiology of Activeness*); and (4) manifestation of subsensory perception. A prerequisite for creating an integral objective picture of individual psychic life would be to further develop ideas on the nature of the U. and the specifics of its manifestations, mechanisms and functions in controlling man's behaviour.

V

Validity, a major criterion of test quality (see *Testing*), test suitability for measuring what it is intended to measure. Suitable for assessing intellect, a test may be no good for assessing temperament, etc. The concept of V. characterises not only testing, but also its purpose or application. Test V. implies the question: What for? The coefficient of test correlation with some criterion is the measure of V.

Value, a concept accepted in philosophy, ethics, aesthetics, and sociology, and characterising the socio-historical significance for society and the *personalised meaning* for individuals of certain realities. Marxist-Leninist philosophy sees the sources of axiological attitude in the social character of human activity. The whole variety of human object-oriented activity and social relations is the object of that attitude. The V. assessment criteria for different phenomena are of a concrete historical nature. V's are an important factor in social regulation of individual behaviour and human interrelations (see *Value Orientations*; *Value-Orientational Unity*).

Value-Orientational Unity, an indicator of *group cohesion* characterising intragroup relationships and reflecting the degree of coincidence of opinions, assessments, *attitudes* and positions of *group* members with regard to objects (goals, persons, ideas, events, etc.) most meaningful to the whole group. In a *collective*, V.-O.U. is primarily manifested in converging judgements and values in the moral and professional spheres, in its members' approaches to various goals, tasks and values connected with their joint socially-useful activities. As an indicator of group cohesion, V.-O.U. in no way presupposes complete coincidence of the values and positions of all the group members, a coincidence that would level out all manifestations of *individuality*. No motley diversity of tastes, aesthetic appraisals, readers' interests, likings in sports, personal sympathies, etc. in group members would prevent them from preserving their cohesion if they agree on basic issues (see *Group Compatibility*).

Value Orientations (in social psychology), (1) ideological, political, moral, aesthetic and other foundations for personal assessment of and attitude to surrounding reality; (2) a way whereby an individual would differentiate objects by their significance (see *Personalised Meaning*). V.O. form in assimilating social experience (see *Socialisation*) and are seen in personal goals, ideals, convictions, interests, and other individual traits. Within the structure of human *activity*, V.O. are closely connected with its cognitive and volitional aspects. V.O. form the essence of *personality orientation* and express the inner foundation of individual attitudes to reality. Group V.O. develop in the course of joint activities which determine relations among group members. Group cohesion (as *value-orienta-*

tional unity) is guaranteed when the principal V.O. of group members coincide.

Verbal, a term used in psychology to designate forms of sign material, and also operations involving that material. Distinction should be made between comprehensible V. material (series of nouns, adjectives, verbs, numerals, fragments from prose or poetry, etc.) and meaningless V. material (groups of three consonants, syllables, or senseless words that vary in degree of proximation to real language). V. material is contrasted to non-verbal comprehensible material (geometrical figures, drawings, photographs, objects, etc.) and to non-verbal meaningless material (unusual geometrical figures, ink blots). Depending on the material used, distinction should be made between V. and non-verbal *communication* (for instance, by means of gestures); V. *intellect* (one determined by how a person solves V. problems) and non-verbal intellect (characterised by the ability to solve imaginal, constructive, and other non-verbal problems); and V. and non-verbal information (for instance, imaginal information).

Verstehende Psychologie, a trend in German psychology in the late 19th-early 20th centuries, which considered the main objective of psychological investigations to be not the causal explanation of man's psychology but its understanding by correlating man's meaningful *emotional experiences* with the world of cultural and historical values. The theory was advanced by the German philosopher Wilhelm Dilthey, whose idea was based on opposing the natural to social sciences, and on denial of the very possibility to learn the socio-historical dependence of human mind by objective methods, including experimental, scientific techniques. Dilthey's protest against *experimental psychology* as a science that allegedly ignored the most essential features of human consciousness was resolutely rejected by some of its advocates, e.g. by Hermann Ebbinghaus, a German psychologist who noted that the V.P. programme was reduced to intuitive comprehension of psyche, which has no objective foundation and, hence, falls inevitably out of the general context of scientific knowledge about man. Eduard Spranger, a German philosopher and Dilthey's student, was the one to introduce the term "V.P.". He distinguished six types of human behaviour in various fields of culture, namely the ideal model of the theoretical, economic, aesthetic, social, political, and religious man (personality). Subsequently, this typology was used by the US psychologist Gordon Allport and others for their experimental studies of *value orientations* of *personality*. The phenomenological, descriptive approach suggested by Dilthey in contrast to the analytical approach influenced numerous idealistically-minded psychologists, including Felix Krueger and others. In their works, Marxist psychologists criticised V.P. from dialectico-materialistic positions for its strictly idealistic interpretation of the cultural and historical substance of human mind, and for rejecting the

possibility of objective and causal explanation of psychological phenomena.

Vocational Guidance (in socialist countries), scientifically organised professional information intended chiefly for young people graduating from general education schools and designed to give them practical assistance in choosing a profession with account for their *propensities*, *interests*, and formed *abilities*, and also with consideration for the needs of society and the national economy. V.G. must essentially be based on available information on the role and prospects of every profession; the need for personnel; the nature of the work to be done; the socio-economic and sanitary-hygienic status of different professions; the system of professional training, on the one hand, and the requirements of a given profession, medical and physiological indications and counterindications to a given occupation, on the other. V.G. helps establish an optimal correlation between personal aspirations and possibilities and the actual national need for specialists with necessary skills and plays an important role in vocational self-determination. V.G. is most successful when it is conducted on age and educational levels and involves teachers and parents interested in choosing a profession for the young people concerned. V.G. being an element of *vocational orientation*, is conducted by psychologists and teachers that have the necessary knowledge, by medical people and sociologists. They have to work in close contact with the educational establishments and enterprises of their respective districts and be assisted by relevant leading research centres.

Vocational Orientation (in socialist countries), a complex of psychological, pedagogical, and medical measures aimed at optimising specialised employment of young people in conformity with their *desires*, *propensities*, and formed *abilities*, on the one hand, and with account for the need of the national economy and society for specialists, on the other. The Constitution of the USSR provides for systematic V.O., which is an organic element of educational activities in institutions of learning, since the choice of a profession as a realised necessity of one's participation in socially useful labour is an important condition for moulding a personality of the socialist type. Two forms of V.O. have become established: (1) narrow-based V.O., whereby an educational institution that trains specialists reveals to the trainees all the specifics of their forthcoming activity, indicate optimal methods for assimilating them to a given profession, etc. and (2) broad-based V.O. whereby young people who have not yet made their choice are acquainted with available professions. The recent reform of general education and vocational schools in the USSR was aimed to drastically improve V.O. in general education schools through intensified labour training and polytechnical and practice-oriented education based on transition to universal vocational schooling. To improve the level of labour training of the younger gener-

ation, the reform envisaged the involvement of pupils, starting from junior forms, in organised socially useful labour compatible with their health and age. In shortened secondary schools, the pupils had to receive sound general labour training, and in secondary schools labour training in the most widespread professions with account for the needs of specific regions. The Guidelines for the Reform of General Education and Vocational Schools adopted by the Presidium of the USSR Supreme Soviet in 1984 stated that "correctly organised labour education, training and vocational orientation, and direct participation of schoolchildren in socially useful productive labour, are indispensable factors for developing conscientious attitudes towards studies; correct civic orientations, and a morally, intellectually, and physically well-formed personality."

Voluntarism, an idealist trend in psychology and philosophy that recognises the *will* as a special, supernatural force underlying *psyche* and being in general. According to V., volitional acts are totally undetermined, but they themselves determine the course of mental processes. The concept that the will enjoys priority in human life was developed during the collapse of the ancient world outlook, when people began to question the idea that *thinking* is the principal spiritual force. The religious thinker Augustine was one of the first to install the principle of will. He maintained that will governs the actions of the *soul* and body to prompt the soul to self-knowledge; it builds from bodily imprints of things their *images*; extracts ideas embedded in the soul; and so on. The German philosophers Arthur Schopenhauer and Edward von Hartmann absolutised the will by declaring it a cosmic force, which is a source of all human psychic manifestations. Subsequently, under the influence of this variety of V., so-called *depth psychology* (see *Psychoanalysis; Analytical Psychology*) developed a view concerning the irrational nature of *drives* that motivate human *behaviour*. The German philosopher and psychologist Wilhelm Wundt and the US philosopher and psychologist William James also favoured the concept of V. Wundt believed that mental causation supremely manifests itself in the volitional act, primarily in *apperception*, while James maintained that the decisive role in an act belongs to a totally unconditioned volitional decision [*Fiat!* (Lat.)—"Let it be done!"]. The German psychologist Hugo Münsterberg, who defended the idea that the will dominates over all other mental functions, and other Western psychologists of the late 19th-early 20th century took the same view. V. falsely interprets man's inherent *ability* to independently choose a *goal* and the ways for it, and also his ability to make decisions expressing his personal *attitudes* and *beliefs* as being caused by some special spiritual entity.

W

Wakefulness, a behavioural manifestation of the *activation* of the nervous system and its *functional state*, when an individual performs some specific *activity*. In the cycle *sleep*—W. the following W. levels are distinguished: extreme level of tension; active W., tranquil W., and drowsiness, which with reduced W. level turns into sleep. Each W. level is distinguished by specific correlation of vegetative, motor and electroencephalographic activation.

Weber-Fechner Law, the logarithmic dependence of the magnitude of *sensation* (E) upon the physical intensity of the *irritant* (P): $E=k\ logP+c$, where k and c are certain constants determined by a given sensorial system. This dependence was inferred by Gustav Theodor Fechner, a German psychologist and physiologist, on the basis of Weber's Law (see *Bouguer-Weber Law*) and an additional supposition about the subjective equality of barely perceptible sensational differences. Empirical studies confirm this dependence only for the middle section of the range of perceived irritants values. W.-F.L. is commonly contrasted to *Stevens' Law*, according to which this dependence is of exponential, not logarithmic nature. Both formulae have been correlated by Yuri Zabrodin, a Soviet scientist.

Will, conscious *self-regulation* by man of his activities and behaviour, one that ensures the overcoming of difficulties in achieving a *goal*: the subject-created additional motivations to external or internal actions in case of their insufficient *motivational* force. W. originates and is developed in the course of labour, when man learns the laws of nature and changes it. In performing two interconnected functions, namely, the motivational function, which ensures man's activity, and the inhibitory function, which shows in the containment of that function, volitional acts are observed: in situations involving a choice of equally significant *motives* and goals that engender a struggle of motives; in the absence of actual intrinsic need for action; in the presence of external and internal obstacles, and so on. As a rule, the struggle of motives in a situation involving such a choice results in the forming of a single system of subordinated motives correlated with the goal. In this case, the comprehension of the correlations between the goals, means and results of an action, on the one hand, and the totality of its motives, on the other, constitute the basis of *self-control*. When the subject in question has no actual need to act, the volitional process consists in the voluntary development of additional motives, which change the significance of his action or impart it an additional meaning through voluntary change of the significance of the acting motives (their lower or higher values) by foreseeing and emotional anticipation of the consequences of that action (see *Personalised Meaning*). Developed W. is a specif-

ically human function; yet, its lower levels, such as voluntary movements (see *Movements, Voluntary*) and delayed impulsive action, are already distinguished in animals. In idealist philosophy, W. is understood either as a supernatural phenomenon, or as a totally unconditioned human capacity to initiate and perform the needed action. Dialectical-materialist philosophy regards volitional behaviour as the acme of personal activity caused by a system of social relations and one that presupposes "the capacity to make decisions with knowledge of the subject" (Frederick Engels, *Anti-Dühring*, Progress Publishers, Moscow, 1975, p. 132).

Work Capacity, a person's potential ability to perform purposeful *activity* at a present level of efficiency during a definite time. Work capacity depends on the ambient environment and the individual's psychophysiological resources. Depending on the *task* to be performed, one may distinguish maximal, optimal or reduced capacity for work. In the course of activity, the level of work capacity changes. This change may be described graphically by a curve which shows the dependence of efficiency on the time during which work is performed. Lengthy activity is typified by the following stages of work capacity: warming up, optimal work capacity, and compensated *tiredness*, and final "collapse". These stages are distinguished chiefly by observed performance. In analysing changes in the functioning of systems that ensure activity, one can trace a finer dynamics of work capacity stages, viz., mobilisation, initial reaction, hypercompensation, compensation, subcompensation, decompensation, and failure. Depending on the type of work, individual features, state of health, and professional training, the duration, alternation and degree of prominence of individual stages may vary, with some of them falling out. Correlation of work capacity stage durations is indicative of optimal organisation of work.

Work-Mediated Interpersonal Relationships, Theory of a socio-psychological theory approaching *interpersonal relationships* in any adequately developed *group* as mediated by the content and *values* of object-related activity. It was elaborated by Artur Petrovsky and was first called the "stratometric conception". Work mediation is regarded as a systems-forming trait of a collective, one that determines its basic socio-psychological characteristics. In reaching a goal in a certain object of activity, a group changes itself, improves its structure and transforms the system of interpersonal relationships. The nature and orientation of these changes depend, in the end, on the content and values of the activity which are derived from a broader social unit. The mediation of relationships between individuals through *joint activities* make it possible to understand the nature of group differentiation and integration; to divide groups into types and reveal the specific traits of those having the highest level of developmen (*collec-*

usually seen in that it has introduced into psychology the notion of imageless thought. The W.S. interpreted the process of thinking as a change-over of operations, occasionally assuming an affective tension (feelings of certainty, doubt, etc.). The works of W.S. psychologists posed a number of important problems concerning qualitative distinctions between thinking and other cognitive processes, and revealed the restricted nature of the associative concept and its inability to explain the selective character and intentionality of mental acts. Yet, they unjustifiably contraposed imageless thought ("pure" thinking) to its other forms, while ignoring that thought is dependent on verbal and practical *activities*. The W.S.'s idealistic methodology, which reflected the influence of German philosophers Franz Brentano and Edmund Husserl, prevented its representatives from revealing the actual causes of mental processes. Data obtained by the W.S. evoked criticism from representatives of other schools of experimental psychology who also used introspection (Wilhelm Wundt, Edward Titchener, and Georg Müller), and this led to a general crisis of the introspectionism.

Y

Yerkes-Dodson Laws, the establishment of dependency of the quality (productivity) of the perfomed *activity* on the intensity (level) of *motivation*. The first Y.-D.L. stipulates that as the intensity of motivation grows, the quality of the activity increases correspondingly along a bell-like curve: initially rising, then, having passed a peak indicating the successfulness of the activity, it gradually declines. The level of motivation when the activity is most successful is called the optimum of motivation. According to the second Y.-D.L., the more difficult the performed activity for the subject, the lower the optimal level of motivation. These laws were discovered by the US psychologists Robert Yerkes and John Dodson in 1908 in the course of their research into the dependence of *learning* on the magnitude of reinforcement (electric shock) among mice. Subsequently, these laws have been confirmed by data concerning other kinds of animal and human activities and motivations.

Yoga, the ancient Indian religious and philosophical system of self-perfection connected with the system of psychophysical training aimed at altering *psyche* by extremely high degrees of *attention* concentration. The ancient Indian forms of Y. were elaborated within the framework of the Veda religion, the rites of which required from priests an intensive concentration of attention on certain images. The development of corresponding methods had led to the creation of the classical system—the "eight-step Y.". The disciple goes through eight stages: (1) behaviour control (non-violence, truthfulness, avoidance of thieving, modesty, avoidance of money-

grabbing); (2) self-restraint (chastity, contentment, ascetic training, oral recital of sacred texts, worship of God); (3) an appropriate position of the body (the system of 84 "asans", or postures); (4) breathing control (pranayama)—a combination of methods to gradually slow down the breathing rhythm which, as the Yogis believe, is connected with all mental processes, above all *thinking*; (5) restraint of *emotions*—bringing a halt to external feelings with the aim of utmost concentration; (6) concentration of attention on one (small) external object; (7) *mediation*—the utmost concentration of attention, the state of "dissolution" in the object; (8) trance mediation (samadhi)—concentration of attention leading to the loss of self-awareness. Two types of trances are distinguished: (1) the feeling as such of the object is not lost; (2) the activity of the subject shrinks into itself and any realisation of the subject is lost. The above-mentioned method of psychophysical training was called Raja Y. (royal Y.). Along with this, there are descriptions of more or less simplified versions: the cultivation of an emotional contact with the teacher (or the deity)—Bhakti Y.; ritual acts—Karma Y., etc. Y. training is intended to evoke profound changes in man's psyche. This also concerns the abilities of the Yogis to regulate the functioning of their internal organs, to easily endure extreme degree of heat or cold, to do without food and air, etc. At the same time, Y. texts incorporate a number of notions impeding the comprehension of the system as a whole. The rational moment of Y. consists in identifying and applying the centuries-old experience of the training of psychic functions, which, however, is combined with mystical and irrational ideas about the nature of psyche.

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